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ABSTRACT

Through taped interviews, this study investigated the pronunciation of certain consonants in a rural, deep south county in the South Georgia-North Florida area. The informants came from three groups: lower socioeconomic status (LSES) second graders, LSES senior high students, and teachers in the public schools. Some of the findings showed that there were significant differences between (1) speakers of black and white regional "standards," (2) educated blacks and LSES black school children at both levels, (3) educated whites and LSES white second graders (but not senior high students), and (4) second graders and senior high black and white children. Differences attributable to education level and to race were statistically significant (.05) for all variables examined, and males simplified with consistently greater frequency than did females. Using the elicitation instrument prepared for this study, a striking consistency was shown between results obtained through analysis of part of the interview and those obtained in a more time consuming analysis. Appendixes contain materials used in the study and tables of findings, and a bibliography provides a list of references. (Author/JM)

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Some Systematic Phonological Variations from the Regional Standard in the Oral Language of Lower Socio-Economic White and Negro Students in a Rural Deep South County

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I. INTRODUCTION

The general purpose of this study is to investigate certain differences in pronunciation between three major groups in a rural, Deep South county. These three major groups are second graders, senior high school students, and teachers in the public schools. All of the second graders and high school students included in this study are of lower-socio-economic status. The members of the third group, the teachers, are obviously adult and middle class. All of these hold baccalaureate degrees, and several of them have graduate degrees. They can be said to represent "standard" speech--the target pronunciations-- for the other two groups. Or, if one wants to talk of "standard Black" and "standard White" English, then these educated adults represent both "standards." The three major groups will be divided into sub-groups by race and by sex. An overview of the composition of the groups and subgroups is given in the following table:

TABLE 1. SUB-GROUPINGS WITHIN MAJOR GROUPS OF INFORMANTS.

	GRADE 2				SENIOR HIGH SCHOOL				COLLEGE GRADUATES			
	(Ages 7-9) Lower SES				(Ages 15-20) Lower SES				(Adult) Middle SES			
RACE	Black N=20		White N=20		Black N=20		White N=19		Black N=12		White N=12	
SEX	M	F	M	F	M	F	M	F	M	F	M	F

The sub-groups have been identified for purposes of within-group and between-group comparisons.

The pronunciation differences which are to be examined all involve consonants. This research has been focused toward identification and description of regional "standard" pronunciation of certain consonants, and toward variations from "standard" in the speech of lower-socio-economic-status (LSES) school children. I have chosen to investigate aspects of the consonant system rather than the vowel system because I believe that certain consonantal variations from the regional "norm" carry greater social stigma and because some of these variations present greater interferences in the child's educational process. Vowel spellings appear to be somewhat arbitrary in English, but certain internalized rules for consonant cluster simplification, for example, can interfere with spelling, with associating a written form with its spoken form, and with comprehension in reading.

Phonological Variables to Be Examined

The pronunciation differences investigated in this study involve the following phonological variables:

1) Consonant clusters ending in _d or _t where the _d or _t is not a past tense marker, but is the final sound in a monomorphemic unit such as most, left, sand, hold.

2) Consonant clusters ending in _d or _t where the _d or _t is the past-tense marker--with grammatical significance--

in polymorphemic units such as passed, walked, laughed, missed.

3) post-vocalic r in stressed and unstressed syllables, as in car, court, Paris, father

4) th- at the beginning of words such as this, that, these, those.

5) -th at the end of words such as with, worth, fourth, truth.

6) post-vocalic l in stressed and unstressed syllables, as in told, Carol, uncle, little. lɪtəl

Some dialectal variations involving these phonological features were anticipated and investigated. These variations are defined and discussed as follows:

I. Consonant Cluster Simplification is the dropping of the last stop consonant of word-final clusters. This study deals only with those clusters sharing a common voicing feature; that is, both members of the cluster are either voiced or voiceless. Clusters in which both members are either voiced (e.g. -nd, ld, vd) or voiceless (e.g. -st, -ft, kt) are said to be alpha voiced (αvd). The following rules are posited for regional and/or social variations in pronunciation of these clusters:

A. Simplifications of monomorphemic units containing (αvd) word-final consonant clusters in which the final _d or _t is not a past tense marker. Examples:

(past ⟶ pas')	st ⟶ sØ/_##
(soft ⟶ sof')	ft ⟶ fØ/_##
(sand ⟶ san')	nd ⟶ nØ/_##
(hold ⟶ hol')	ld ⟶ lØ/_##
(fact ⟶ fac')	kt ⟶ kØ/_##

The general rule for Consonant Cluster Simplification in monomorphemic units such as those above seems to be

$$C \longrightarrow \emptyset / C\_\#\#$$

B. Simplification of polymorphemic units containing $(\alpha \text{ vd})$ consonant clusters in which the last consonant is a past tense marker. Examples:

(missed ⟶ miss)	$s\#t \longrightarrow s\#\emptyset/\_\#\#$
(laughed ⟶ laugh)	$f\#t \longrightarrow f\#\emptyset/\_\#\#$
(fined ⟶ fine)	$n\#d \longrightarrow n\#\emptyset/\_\#\#$
(rolled ⟶ roll)	$l\#d \longrightarrow l\#\emptyset/\_\#\#$
(proved ⟶ prove)	$v\#d \longrightarrow v\#\emptyset/\_\#\#$
(walked ⟶ walk)	$k\#t \longrightarrow k\#\emptyset/\_\#\#$

The general rule for the simplification of $(\alpha \text{ vd})$ consonant clusters in polymorphemic units such as those above seems to be

$$C \longrightarrow \emptyset / C\#\_\#\#$$

The percentage of simplification of monomorphemic units will be compared with the percentage of simplification of polymorphemic units to determine to what extent syntactic constraints override phonological rules or if phonological rules are more powerful than syntactic constraints. In other words, I will try to establish the relative strengths of consonant cluster simplification and past tense marking in cases where consonant cluster simplification affects morphological tense marking.

Two additional aspects of consonant cluster simplification will be discussed: 1) whether the phonological environment, i.e., a consonant (_K), a vowel (_V), or a major constituent (_####), following the cluster influences the frequency of simplification; 2) whether students recognized the orthographic -*ed* as a past tense marker. A part of the elicitation methodology was specifically designed to determine the latter.

II. *r-lessness* has traditionally been characteristic of three major dialect areas in the Eastern United States: the Upper and Lower South, Eastern New England, and New York City. Speakers of r-less dialects either lengthen the vowel preceding the *r*, as in *car* [Ka·] or substitute an obscure centering glide, schwa [ə], for the orthographic *r*, as in *four* [foə̯]. The r-pronouncing-pattern predominating in radio and television has exerted considerable influence on formerly r-less regions, particularly among younger people. Among the objectives of this study is an investigation of r-lessness to determine the extent to which this is a "standard" variation, a social class variation, and a racial identifier. The correlation between frequency of simplification of *r* and age of the speaker will be also discussed. The phonological shape which *r* takes in the following environments has been analyzed. Examples:

(cou*r*t) - *r* in the environment before a consonant (_K);
(he*r* old) - *r* in word final position, followed by a vowel (_##V);
(Ca*r*ol) - *r* between vowels (V_V); and
(ca*r* ####) - *r* before a major constituent break (_####).

The phonological rule for r-lessness can be economically stated as follows:

$$/r/ \rightarrow \left\{ \begin{array}{c} \emptyset \\ \text{ə} \end{array} \right\} \Big/ \begin{array}{l} \_K \\ \_\#\#V \\ V\_V \\ \_\#\#\#\# \end{array}$$

court→[Ko·t] or [Koə̯t]
for a→[fɔ· e] or [fɔə̯ e]
Florida→[flɑ·də] or [flɑə̯də]
car→[Kɑ·] or [Kɑə̯]

These examples are given in phonetic notation (IPA) since conventional spelling will not suffice to give even approximate pronunciation.

III. The substitution of /d/ for /ð/. The voiced alveodental stop /d/ sometimes takes the place of the voiced interdental fricative /ð/ in word-initial position. The phonological rule for this substitution is

$$/\text{ð}/ \longrightarrow /d/ \Big/ \#\#\_$$

(this ⟶ dis)
(that ⟶ dat)

IV. The substitution of /t/, /d/, and /f/ for /θ/. The phonological rule for the substitution of the voiceless alveodental stop /t/, the voiced alveodental stop /d/, and the labio-dental fricative /f/ for the voiceless interdental fricative /θ/ in word-final position is

$$/\theta/ \longrightarrow \left\{ \begin{array}{c} t \\ d \\ f \end{array} \right\} \Big/ \_\#\#$$

(month ⟶ mont')
(with ⟶ wid or wit)
(worth ⟶ worf')

V. The extent of l-lessness between and within the groups will be quantified. The pattern of l-dropping is very similar to that of r-dropping. Both consonants are liquids and have similar phonetic qualities. When l disappears, it is often replaced by a back unrounded glide [ɣ] instead of the [ə] which often replaces *r*. However, *l* sometimes disappears entirely, especially after back rounded vowels. The linguistic environments in which *l* has been investigated are shown in the following phonological rule:

$$/l/ \longrightarrow \left\{ \begin{vmatrix} \emptyset \\ \gamma \end{vmatrix} \right\} \Bigg/ \begin{array}{l} \_\_K \\ \_\_\#\#V \\ \_\_d \\ \_\_\#\#\#\# \end{array}$$

all the→[ɔ·ðə]
fell off→[fɛ' ɔf] or [fɛγ ɔf]
told→tol'→[to·d] or [to·]
Carol→[Kærγ]

Again, as with *r*, the examples were given in phonetic notation because of the inadequacy of conventional spelling to show even approximate pronunciation.

Need for the Study

There are at least six primary justifications for a study such as the present one--four from the perspective of substantive contributions, and two from the perspective of methodological contributions. The substantive aspects of the study include: 1) descriptions of some characteristics of both educated and non-standard Black English in the rural, Deep South; 2) descriptions of both educated and non-standard White dialects in the rural, Deep South; 3) correlations of some social and linguistic variables in the Deep South; and 4) an investigation of the role of sex in language. The methodological aspects of the study include: 1) a cursory investigation into just how large a corpus of linguistic data is necessary and sufficient for reliable phonological analysis; and 2) the use of statistical tests to determine significance of quantitative differences observed.

First, it is readily apparent from reviewing the literature in the field that the majority of studies of Black English phonology have been focused on Northern Metropolitan Areas. This study, in contrast, will provide a description of certain phonological features of Black English in the rural Deep-South. Furthermore, it will investigate the oral language of groups of Black English-Speaking informants at three strategic points on the language development spectrum: 1) near the beginning of the post-acquisitional period (second grade); 2) at the level when sensitivity to the social consequences of speech approximates adults norms (senior high school); and 3) at the culmination (educated adult)--the target language for the other two groups.

Secondly, descriptive studies of both non-standard and educated Southern White dialects are indeed few. This study will provide a description of some features of the phonology of speakers of these dialects. The investigation will involve the same parameters as for the Black speakers.

The third justification for this study is that a description of the correlation of some social and linguistic variables in the Deep South is needed since, according to Wolfram,

> Some Southern regional features have apparently only taken on social significance in the North because of their association with ethnicity and

> Social Class in the North. By contrast, there are other features which have social significance regardless of the geographical region.... Careful studies of the social significance of linguistic variables in the South can help us sharpen our understanding of the interaction of geographical and social factors in speech. Furthermore, such studies can lead us to general conclusions about the nature of socio-linguistic variation in the United States. (1969:45)

Fourthly, this study will provide needed descriptive data on the role of sex in language at different levels of chronological maturity.

The first methodological investigation in this study is concerned with the question of how large a speech sample is large enough to be representative of an individual or a group. Because of the detailed nature of phonological analysis, it would certainly be a contribution to linguistic methodology if it could be determined just how much data must be analyzed before the mean percentage of variation of a form becomes stable for a representative sample within a speech community. In an attempt to see how much of the vast amount of data collected for this study constituted a large enough sample of speech for reliable analysis, I calculated--for the first half of each interview--the ratio of simplification-to-occurrence of the variables. The percentages of simplification for the various groups were determined. These same calculations were later made with a considerably larger body of data. The findings of this experiment are discussed later. There is some indication that it is within the realm of possibility to determine the quantity of data which should be analyzed before a researcher can say with some confidence that a given group applies the consonant cluster simplification rule, for example, a given percent of the time.

Finally, like the studies of Labov (1968) and Wolfram (1969), this study utilizes quantitative measurements to determine differences between and within the sub-groups of the same geographical speech community. This study, however, will be one of the first to use statistical tests to determine significance of the quantitative differences observed. Since this is one of the pioneering dialect studies making use of statistical tests to determine which of the apparent differences in relative frequency of variation from certain "standard" phonological features are really significant differences within the geographical speech community, it is hoped that this study will contribute to refinement in methodology in linguistic analysis in such a way as to be useful to other language researchers using current social science standards of interviewing.

It is hoped that this research will make both substantitive and methodological contributions to linguistic science in general and to dialect study in particular. This hope is strengthened by the fact that concentration, in this research, has been focused in areas which have previously received little or no descriptive attention.

II. A REVIEW OF RELATED STUDIES

Extensive research into the structure of Black English in the large urban centers of New York (Labov, 1964, 1966) Detroit (Shuy, Wolfram, & Riley, 1967), Washington, D.C. (Wolfram, 1969), Chicago (Pedersen, 1965), and Watts (Legum, Williams, & Associates, 1968) has revealed striking similarities in the overall structure of the variety of English spoken by Negroes in these various areas. The focus of these studies has been on the identification of socially (and racially) diagnostic linguistic features. High correlations have been found to exist between linguistic variable and social class, while differences attributable to geographical location have been found to be relatively insignificant throughout the investigated areas.

Labov's monumental work on the social stratification of English in New York City (1966) has probably affected the field of linguistics and sociology more than any other single piece of research. His aim is to account for linguistic variation in a systematic way. This present research is highly indebted to Labov's description of his approach to the correlation of linguistic features to social stratification, and of his interviewing techniques. His major contribution was his demonstration that speech differences within a community systematically correlated with social differences.

Labov's (1968, p. 70) statement concerning accurate sociolinguistic analysis being dependent upon the principle of accountable reporting has served as a guide for this research. Labov asserted:

> A report of a linguistic form or rule used in a speech community must include an account of the total population of utterances from which the observation is drawn, and the proportion of the expected environments in which this form did in fact occur.

McDavid (1948), in his research on post-vocalic r in South Carolina, found three variables operating toward decreasing r-production: 1) the more education, the less constriction; 2) within the same cultural level, younger informants have less constriction than older ones; 3) urbanites have less constriction than rural people.

Pederson (1965), in his Chicago research, noted certain contrasts between Blacks and Whites of different ages, education levels, and social groups.

Labov and Cohen (1967) suggested that differences between Black non-standard English and standard English are surface manifestations of relatively low-level rules. They showed that these Black non-standard speakers can perceive and reproduce many forms which they do not ordinarily produce.

Wolfram (1969) gives one explanation for the paucity of research into Black English by quoting Stewart (1965:13):

> As this (the study of Black English) relates to the speech of Negroes, it has been reinforced by a commendable desire to emphasize the potential of the Negro to be identical with white Americans and accordingly to de-emphasize any current behavioral patterns which might not seem to contribute directly to that goal...respect for the feeling of Negroes themselves has probably played a part in discouraging the study of Negro speech. For, as is quite understandable, many Negroes (particularly educated ones) are somewhat sensitive about any public focus on distinctively Negro behavior, particularly if it happens to be that of lower class Negroes.

Williamson (1968), in her study of the speech of the Negro in Memphis Tennessee, investigated phonological and morphological features. Her subjects were both educated Blacks and those with little or no education. She found fewer differences between the levels of education on the phonological than on the morphological level.

A study similar to Pederson's Chicago study was done in Detroit by Shuy, Wolfram and Riley (1967). Over 700 randomly selected Detroit residents were interviewed through direct questioning, informal questioning and prose reading. The speech features observed were related to the variables of social group, race, age, and sex.

Comparable studies of Black English in both the rural and urban South are, however, conspicuously lacking. The same is true for comprehensive descriptive studies of non-standard Southern White dialects. Because of the paucity of research in these two areas, there is a great need for investigation into both non-standard White and Black speech in various sections of the South. Such investigation will enable linguists to establish whether Southern and Northern varieties of Black English are essentially alike, and perhaps, will help to resolve the controversial question of the exact relationship between the speech of Southern Negroes and Whites of comparable socio-economic background. Until recently this relationship has been virtually uninvestigated for several reasons, one of the more important being that dialectologists have held the general view expressed by Kurath in the Linguistic Atlas:

> By and large the Southern Negro speaks the language of the white man of his locality or area and of his level of education...As far as the speech of the uneducated Negroes is concerned it differs little from that of the illiterate white; that is it exhibits the same regional and local variations as that of the simple white folk. (1949:6)

Since linguistic research within the last ten years has indicated that non-standard Negro dialects are basically alike throughout those widely separated sections of the country which have been investigated, while different in many ways from the non-standard dialects of Whites living in the same areas, a descriptive analysis of non-standard Negro English (NNE) and non-standard White English (NWE) in the Deep South would be a valuable contribution to linguistic research. If, contrary to Kurath's statement, there are significant differences between NNE and NWE in the South also, these differences should be isolated and described.

III. THE DESIGN OF THE STUDY

The purpose of this chapter is to describe the method of selecting the subjects for the study, the method of gathering the speech samples, the "psychological" orientation of the linguistic interview, the method of analysis of the speech samples, the hypotheses, and the statistical treatment of the data.

Informants in the Study

The informants for this study are 79 public school students and 24 college-educated adults in a rural Deep-South County in the South Georgia-North Florida area. The county school system has an enrollment of more than 2500 students, and more than 70 percent of these students are Black. The student informants for this study were randomly selected by the school officials from their NDEA list of lower-socio-economic target children who are economically and/or educationally deprived. The only restrictions on complete randomization within the NDEA list were: 1) that those selected must have lived in the county all their lives; 2)that forty be chosen from the senior high school with equal numbers of White and Black, male and female

(10-10-10-10); 3) that forty be selected from the second grade with the same distribution as to race and sex; and 4) that students with speech impediments be excluded. The conditions were met as far as was possible, with the exceptions being (1) that there were only nine senior high White males and nine senior high Black males on the NDEA list who met specifications 1. and 4.; (2) eleven senior high Black females who met all the specifications were interviewed. As it turned out, the "random sample" in the high school was the total population meeting all the specifications and being at school at any time during the interview sessions. The NDEA list for the second grade was considerably longer than for the senior high school. All of the requested specifications were met in the selection of the Grade Two informants.

To protect those students defined above from being labeled by their peers (who learned early in first grade to tell whether the "best" reading group is the blue birds or the red birds), I interviewed--from each grade, race, and sex--several students coming from families of middle socio-economic status. These interviews were not analyzed for this study.

My reason for selecting these particular age groups is that the second graders are at about what Labov calls the midpoint of their dialectal development, while senior high students are approaching adulthood and have stabilized dialectal systems which are probably representative of the regional young adult non-standard varieties (Black non-standard and White non-standard) of English. Further motivation for conducting the research at these two widely spaced grade levels is to allow comparison of performance in terms of observable developmental trends and to determine if there are differences which are attributable to age.

So that various between-and-within group comparisons might be made with maximum accuracy, approximately the same number of informants from each race at each of these two education levels was selected. A major reason for these comparisons is to determine whether there are significant differences in pronunciation which are attributable to race, or, rather, whether members of the two races are, in fact, members of the same population--speakers of the same non-standard dialect.

The regional "standard" was investigated through interviews with the total population (12) of native-born, middle-class, college-educated White adults who spent their language-learning years in the county, were educated in the Deep South, and are teachers in the public schools. An equal number (12) of Black adults, randomly selected from all those (more than 40) who met the above specifications also served as informants. Using these criteria for selection of regional-standard-English-speaking informants, I interviewed as large a sample as was possible while maintaining a distribution with equal numbers of informants from each race. (For an overview of the characteristics of the three major groups of informants and the sub-groups into which they are divided, see Table 1.)

Method of Gathering Language Samples

The speech samples which comprise the data for this research were elicited in personal interviews between the investigator and each of the 103 informants. These interviews were recorded on Scotch Magnetic Brand Tape, 1/4 inch X 900 feet, at the speed of 3 3/4 IPS. A Sony-Matic TC-105 tape recorder was used. Both sides of thirty tapes were filled during the interviews.

Through the cooperation of the County School Superintendent, Curriculum Directors, and Principals of the four schools from which the informants were chosen, an interview schedule was set up and a quiet place for the interviewing was provided. Informants were sent to the investigator at pre-determined intervals--every forty-five minutes for the senior high informants and every thirty minutes for the second grade and adult informants. All the interviews were conducted between April 14, and June 8, 1971.

The Linguistic Interview

The first few minutes of each interview were spent in getting acquainted with the informant so that he felt comfortable enough in my presence to perform naturally.

After some conversation, the tape was played back so that he could hear how he sounded. Many of the informants had not heard their own voices previously. In this very informal session, my methodology was structured to get the informant to talk about his family, friends, pets, plans for the future, serious accidents, fights, girl- or boy-friends, school, hobbies, etc. I had no problem in communicating with informants from any of the three major groups. I feel that they accepted me and spoke as naturally with me as was possible in an interview-type situation.

In order to divert attention from "proper" language in the more highly structured part of the interview, I explained to each informant that he was helping me conduct a psychological experiment concerning Short-Term-Memory and Stimulus-Response-Reaction-Time. He was told that he would be given something to remember, a simple task to detract his attention briefly and prevent rehearsal, and then would be asked to pull from his short-term-memory-store some information. I further explained that I was attempting to determine if the "interference" task would prevent him from long-term retention for later recall. (This terminology was explained in as much depth as the informant required.) I then gave him a 3/4 inch X 5 1/2 inch card with a sentence containing at least one of the phonological variables, asked him to read it silently as quickly as possible, and then to perform the task. I assigned two tasks and alternated these with each subject half-way through the "short-term-memory-test." The tasks involved 1) the selection of a colored marble from a box and the placing of it on its matching color segment on a Chinese Checker Board; and 2) selecting a Lego Block from a box and snapping it to one of a different color. There were thirty-seven cards containing sentences. The subject performed one of these tasks between the silent reading of each card and the repetition of the sentence on the card. (See Appendix A, SHORT TERM MEMORY TEST, for the sentences which were typed on the 37 cards.)

For the Stimulus-Response-Reaction-Time Test, I gave the informant a cardinal number and asked him to respond immediately with the corresponding ordinal number. If I said *two*, his response was *second*, or *forty-one*, *forty-first*, etc. Consonant clusters, /*r*/, and /θ/ were analyzed in these responses. Next he was instructed to respond to the stimulus of a name of a month by responding with the following month. I was interested in *r*'s, in the *l*, and in the consonant cluster in *August* in this exercise. (See Appendix A, STIMULUS-RESPONSE-REACTION-TIME-TEST.)

After these "psychological" tests, the informant was asked to read two passages concerning a dog that was run-over, first silently and then aloud --in a play-acting manner, showing personal emotion. He generally reacted very well to this. One passage was a check on his pronunciations of the *th* (/ð/) variable and the other on the *r* variable. The last part of the "test" he was asked to perform was to read nine sentences constructed by Labov. This test was designed to check for recognition of -ed as a past tense marker. If the informant recognized the marker, it was expected that he would pronounce the homograph read as /rɛd/. (See Appendix A, /rid/and/rɛd/.)

The methodology for eliciting the same variables from the second graders was somewhat different. Most of these disadvantaged children are not sufficiently skilled in reading to follow the same procedure as the older students. The first few minutes were spent as with the older group. To elicit pronunciation of the variables in the thirty-seven sentences, I converted these to questions, asked the informant to answer yes or no, and then repeat the question in statement form. (See Appendix A, SHORT-TERM-MEMORY-TEST, Second Grade.) I believe this task took his attention from my pronunciation. For example, the older groups had a card saying He is the fastest boy on our team. For the second grader, I asked Is he the fastest boy on our team? He was instructed to reply: Yes (or no), he is (or is not) the fastest boy on our team. Most of the second graders were able to do this very well. A few required some prompting. To elicit pronunciation of the ordinal numerals, I asked the informant to name all the grades in school from first to twelfth, and then to keep counting in the same way. I used the same method for eliciting pronunciation of the months as was used with the older informants.

Since I was unable to use the two reading tests, *Hungry Sam* and */rid/and/rɛd/* as with the senior high group, I did not use the former at all with the second graders, and I modified the */rid/and/rɛd/* section (see Appendix A, */rid/and/rɛd/ for Second Grade*) to be used in the same manner as the 37 sentences--in Question/Answer form. In lieu of the two paragraphs designed to elicit the /r/ and /£/ variables, the second graders were given a list of 16 words (see Appendix A, *Word List for Second Grade*) containing the word-final consonant clusters under investigation and were asked to make a sentence using each of the words. Those who could read were shown the word; for the others, the word was spoken quietly and with conscious effort on the part of the investigator not to articulate any more clearly than was necessary for the informant to perceive the word. It was assumed, and rightly so, that these original sentences would contain enough occurrences of the /r/ and /£/ variables to compensate for not using the reading passage.

The elicitation methodology which was used for the senior high students was also used for the educated adults. The exception to this was that the */rid/and/rɛd/* passage was omitted from the adult interviews. It was felt that in view of the limited time (twenty minutes) which I had to spend with each adult informant, conversation would be more revealing than more reading.

To summarize concerning the linguistic interview:

1. There was a brief "getting-acquainted" period at the beginning of each interview.
2. All three groups were given the SHORT-TERM-MEMORY-TEST and the STIMULUS-RESPONSE-REACTION-TIME-TEST (with modifications of the former for second graders).
3. The adult and senior high informants read "Hungry Sam".
4. The second graders made 16 original sentences.
5. The senior high informants read the /rid/and/rɛd/ sentences, and the Grade Two informants used these as a Question/Answer test.
6. All three groups were engaged in informal conversation with the interviewer.

Thus, the phonological variables were available for analysis in at least three different speech styles for each informant:

1. Casual: Conversation recorded after the getting-acquainted period.
2. Excited: Responses in the STMT and SRRTT.
3. More formal: Reading (For the second graders, the original sentences seemed to command their most conscious attention to speech.)

Analysis of the Speech Samples

Immediately following the completion of the linguistic interviews, the overwhelming task of sifting through more than fifty hours of tape-recorded connected speech was begun. Using a complete set of the relevant elicitation instruments (see Appendix A) for each informant, I circled, during the initial auditing of the tapes, every target phonological feature which was perceived to be a variation from "standard" pronunciation. During the many subsequent auditings of the tapes, the accuracy of the circling was verified, and the simplified forms were phonetically transcribed. The transcription was performed directly on the elicitation instruments. After the transcribing was finished, a final auditing of the tapes served as a reliability check for the phonetic transcriptions. The parts of the conversation containing target variables were recorded on the back of the last page of the elicitation instrument. The 16 original sentences of the second graders were recorded on a separate page. The variant pronunciations in the conversation and original sentences were also indicated with a red circle and were phonetically transcribed.

The red-pencil circlings on the much-marked elicitation instruments were transferred to the appropriate score sheets (see Appendix B). For example, if best in sentence

(1) of the STMT (see Appendix A) had been simplified by the informant, the t was circled on the STMT and later on the Consonant Cluster Simplification Score Sheet (see Appendix B). After all score sheets had been completed for an informant, the ratios for each variable were transferred from these to a single Summary of Score Sheet Totals (see Appendix B) sheet. Each informant had a separate summary sheet. These sheets, in turn, were grouped in terms of the three major groups of informants and the sub-groups within these. For example, the Summary Sheets of the 24 educated adults formed one group. Within this, the Blacks and Whites formed two sub-groups, and within each of these--two more sub-groups--males and females existed. With this kind of grouping, ratios and percentages could be calculated additively, beginning with the most specific and working toward the most general. For example, White-Male-Second-Grade informants is a sub-group of the more general category MALE informant. For each one of the seven variables, the number of times the variable appeared in the corpus was counted. That number is reported as the number of "occurrences" of that variable. Also reported is the number of times the variable was simplified. The latter figure written above the former is called the ratio of"simplifications of occurrences." That ratio is also expressed as a percentage.

Such a ratio and percentage was calculated for each of the following 26 groups or sub-groups: 1) educated adults; 2) senior high students; 3) G-2 students; 4) Blacks; 5) Whites; 6) males; 7) females; 8) adult males; 9) adult females;

10) Black adult males; 11) White adult males; 12) Black adult females; 13) White adult females; 14) senior high males; 15) senior high females; 16) senior high Black males; 17) senior high White males; 18) senior high Black females; 19) senior high White females; 20) G-2 males; 21) G-2 females; 22) G-2 Black males; 23) G-2 White males; 24) G-2 Black females; and 25) G-2 White females.

It was necessary to identify these groups during the analysis so that mathematical calculations essential to the comparisons being made later could be performed. The results of the various comparisons are shown on Tables 2 & 3 and in Figures 1-24. These will be discussed later.

Hypotheses To Be Tested

To establish whether one or two regional standards exist for each one of the phonological variables under consideration, the following null hypotheses were tested:

I. Ho: There is no significant difference between Black and White college-educated adults in the area in the relative frequency of simplification of

A. (KDmm)*
B. (KDgc)
C. (KDtotal)
D. /r/
E. /£/
F. /θ/
G. /l/

---

*For an explanation of the symbols in A-G, see Appendix C.

To establish whether there are significant differences in the use of the phonological variables attributable to differences in education level, race, and sex, the following null hypotheses were tested:

II. Ho: There is no significant difference in the relative frequency of simplification of variables A-G which can be attributed to education level.

III. Ho: There is no significant difference in the relative frequency of simplification of variables A-G which can be attributed to race.

IV. Ho: There is no significant difference in the relative frequency of simplification of variables A-G which can be attributed to sex.

V. Also tested were the null hypotheses of no significant interactions in the use of each of the seven phonological variables between

1) education level and race
2) education level and sex
3) race and sex
4) education level, race, and sex.

It was further hypothesized that there would be no significant differences in the use of the variables between

1) regional standard (Black/White) English and regional non-standard (Black/White) English
2) non-standard Black English and non-standard White English

3) males and females of the same race at the same education levels

4) members of the same race at different education levels.

Statistical Treatment of the Data

Fourteen statistical tests were made to determine whether the first five general null hypotheses are indeed true and should be accepted. To test Hypothesis I, seven one-way analysis of variance tests were computed--one for each of the phonological variables. To test Hypotheses 2-5, seven 3-factor analysis of variance tests were performed. The factors under investigation were Education Level, Race, and Sex.

The statistical analysis was carried out using the Program BMD05V from the Biomedical Computer Programs*. The computations were performed on a CDC 6500 at the Florida State University Computing Center. Because the scores were in the form of proportions, the data was necessarily transformed--by means of the arcsine square root transformation--to satisfy the assumption of equal variances.

Various results of the analysis are given in tables and figures in Chapter IV. The level of significance chosen by the investigator was the .05 level. However, significant differences at the .001 and .01 level were also indicated on the tables.

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*BMD Biomedical Programs. W.J. Dixon, Ed. University of California Press, 1970.

IV. FINDINGS AND DISCUSSION

The purpose of Chapter IV is to present the findings of this research and the disposition of the hypotheses stated in Chapter 3. This will be accomplished primarily through a discussion of the Tables and Figures.

The general focus in the present research has been centered on 1) social and linguistic factors in the establishment of the regional standards for seven phonological variables, and on the identification of significant variations from these standards in the speech of lower SES school children; 2) comparisons of some findings of this research with some findings of other language researchers; and 3) investigation into refinement of research design.

Before variations from "standard" pronunciations in any region can be discussed, it is necessary, first of all, to define "standard". Certainly "standard" is not that illusory hypothetical construct--that figment of prescriptivist imaginations--reverently (by some) referred to as GAE. Standard English for a region is, in every region, the English spoken by the educated and influential people of the region. For purposes of this study "standard" for the phonological variables under consideration has been defined as the pronunciation which native-born, Deep-Southern, educated adults give to these variables. Accepting the Great Commission (analagous perhaps to another Great Commission beginning "Go ye therefore...") given to linguists by William Labov (1964) when he stated,

> The first task of the linguist in any community is a descriptive one. There is little to say about educational problems, or motivation, or inference, until one can give an account of the linguistic behavior of the native speakers of the particular speech community in question (p. 99)...

I have investigated the linguistic behavior of three major groups of native speakers of a particular speech community regarding their use of seven variables. Since the educated adults set the standard to which the other two groups will be compared, it logically follows that I should begin by characterizing this "standard".

Two Regional Standards

The educated adults are of two races, Black and White; therefore, the investigation was begun by testing the null hypothesis of no significant difference between these two sub-groups in the use of each of the seven phonological variables. Having chosen the .05 level of significance, I performed 7 one-way analysis of variance tests--one for each of the consonantal variables. The F-Value which had to be surpassed for rejection of each of these seven null hypotheses is 4.30, and since the F-Values for five of the variables do indeed exceed 4.30, I reject the null hypotheses for these five variables (see Table 2) and conclude that there is a difference in their pronunciation by the two subgroups of educated speakers, significant to the extent that there are two regional standards in the rural Deep-South county in which this research was conducted--a standard for Black English and a standard for White English. These two standards differ, not so much in the categorical presence or absence of a particular variation, but rather in relative frequency of the use of the variation. Figure 1 shows that educated Blacks simplify with a higher relative frequency on each of the seven phonological variables than do educated Whites, but that at the same time, on every single variable, educated Whites simplify to some extent.

The most highly significant difference (.001 level) between the two standards is in the relative frequency of r-lessness. Differences in frequency of simplification of the variables KDmm and KDtotal follow r-lessness, with significance at the .01 level. Differences between the two standards in simplification of /ɛ̃/ and /l/ are significant at the .05 level. On only two of the 7 variables, KDgc and /θ/, are the differences between the two groups statistically non-significant. These two variables are the ones most seldom used of any of the variables analyzed. (See Appendix D for raw, untransformed data which was converted into percentages and used in the construction of the figures concerning the seven phonological variables.)

TABLE 2. F-RATIOS FOR SOURCES OF VARIATION ATTRIBUTABLE TO RACE.

	DF	KDmm	KDgc	KDtotal	/r/	/ʃ/	/θ/	/l/
Educated Blacks and Whites	1,22	8.96**	4.18	9.29**	15.69***	7.46*	1.79	7.14*

*$p \leq .05$
**$p \leq .01$
***$p \leq .001$

To summarize briefly concerning Figure 1: 1) educated Blacks simplify with greater frequency on every one of the seven variables than do educated Whites; and 2) these differences in relative frequency of simplification are statistically significant on five of the variables. In view of the above statements I conclude that there are two regional standards for these phonological variables in the Deep-South: a Black Standard and a White Standard.

Social Differences: Education Level, Race, and Sex

To determine which of the apparent Education Level, Race, and Sex differences in pronunciation of the variables are really statistically significant, seven (one for each variable) 3-Factor (the factors being Education, Race, and Sex) analyses of variance were performed. The results of these statistical tests are accessible in Table 3. The F-ratios given in this Table provide for the disposition of the previously stated null hypotheses II, III, IV, and V. These will be discussed separately. The significant differences are graphically illustrated in Figures 2, 3, and 4.

Education level differences

Hypothesis II, that of no significant difference attributable to level of education in the relative frequency of simplification of each of the seven variables, was tested. The F-ratios resulting from the tests lead to the rejection

Figure 1

The Racial Effect on Frequency of Deletion or Substitution
by College-Educated Adults

(See Table 1. for statistically significant differences)

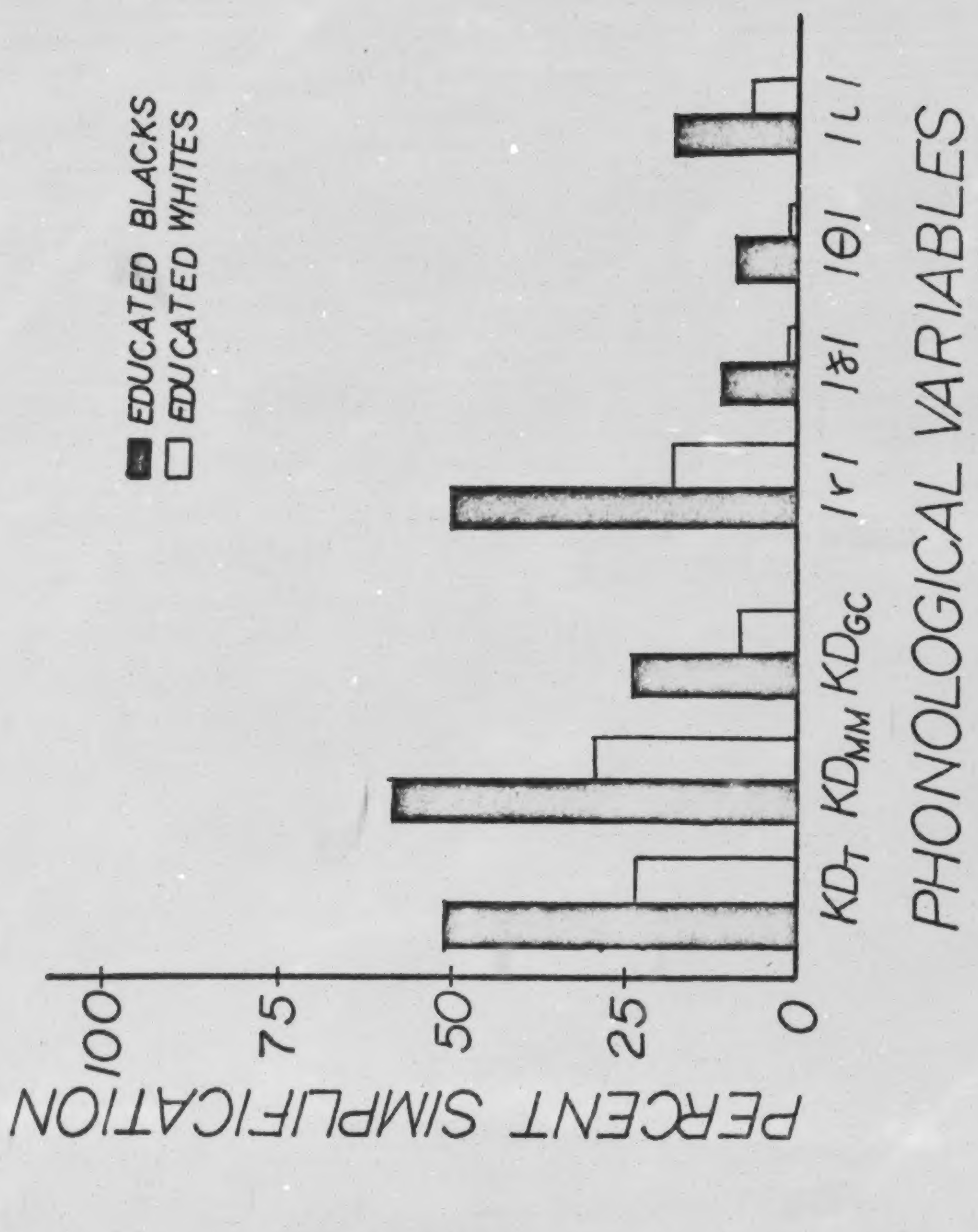

EDUCATED BLACKS
EDUCATED WHITES
PERCENT SIMPLIFICATION
100
75
50
25
0
KD_T
KD_{MM}
KD_{GC}
/r/
/ð/
/θ/
/l/
PHONOLOGICAL VARIABLES

TABLE 3. F-RATIOS FOR SOURCES OF VARIATION ATTRIBUTABLE TO EDUCATIONAL LEVEL, RACE, SEX, AND TO INTERACTIONS BETWEEN THESE MAIN EFFECTS FOR THE SEVEN PHONOLOGICAL VARIABLES.

	DF	KDmm	KDgc	KDtotal	/r/	/£/	/θ/	/l/
EDUCATIONAL LEVEL	2,91	8.24***	5.27**	7.62**	4.56*	22.49***	14.53***	24.76***
RACE	1,91	91.68***	14.25***	82.98***	128.13***	87.58***	33.47***	61.79***
SEX	1,91	2.47	1.44	3.09	9.27**	22.32***	0.91	5.74*
E X R	2,91	1.66	1.29	1.60	6.62**	16.66***	3.33	8.80***
E X S	2,91	0.79	1.61	0.25	4.68**	2.58	0.31	0.09
R X S	1,91	1.46	3.32	2.31	6.87**	4.13*	2.74	0.65
E X R X S	2,91	0.70	0.99	0.30	1.30	0.43	0.75	1.06

$^{*}p \leq .05$

$^{**}p \leq .01$

$^{***}p \leq .001$

Figure 2

The Level of Education Effect, Without Reference to Race or Sex, on Frequency of Simplification

(See Table 2. for statistically significant differences)

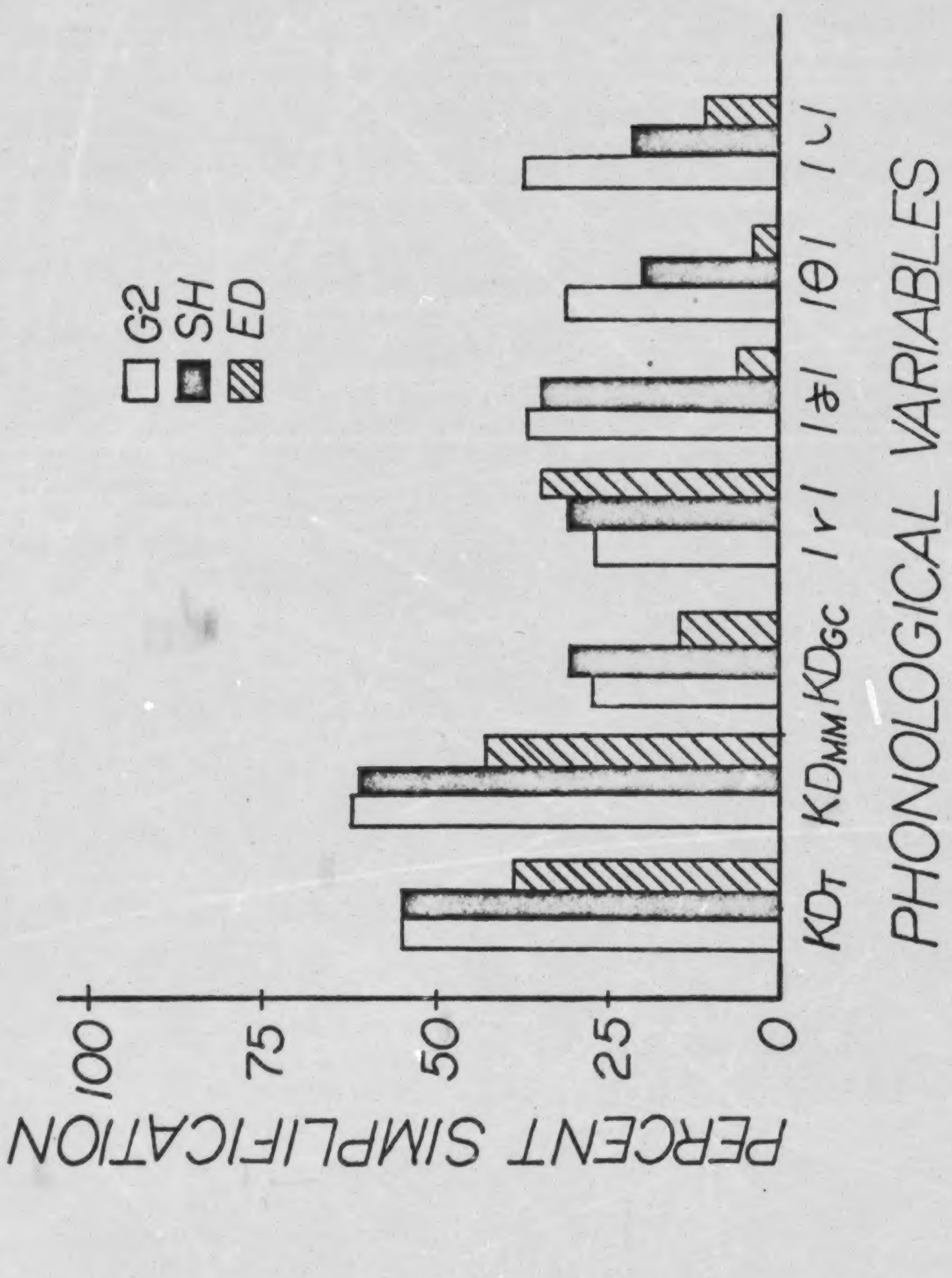

PERCENT SIMPLIFICATION
0
25
50
75
100
KD$_T$
KD$_{MM}$
KD$_{GC}$
/r/
/ð/
/θ/
/l/
PHONOLOGICAL VARIABLES
G2
SH
ED

Figure 3

The Racial Effect, Without Reference to Level of Education
or Sex, on Frequency of Simplification

(See Table 2. for statistically significant differences)

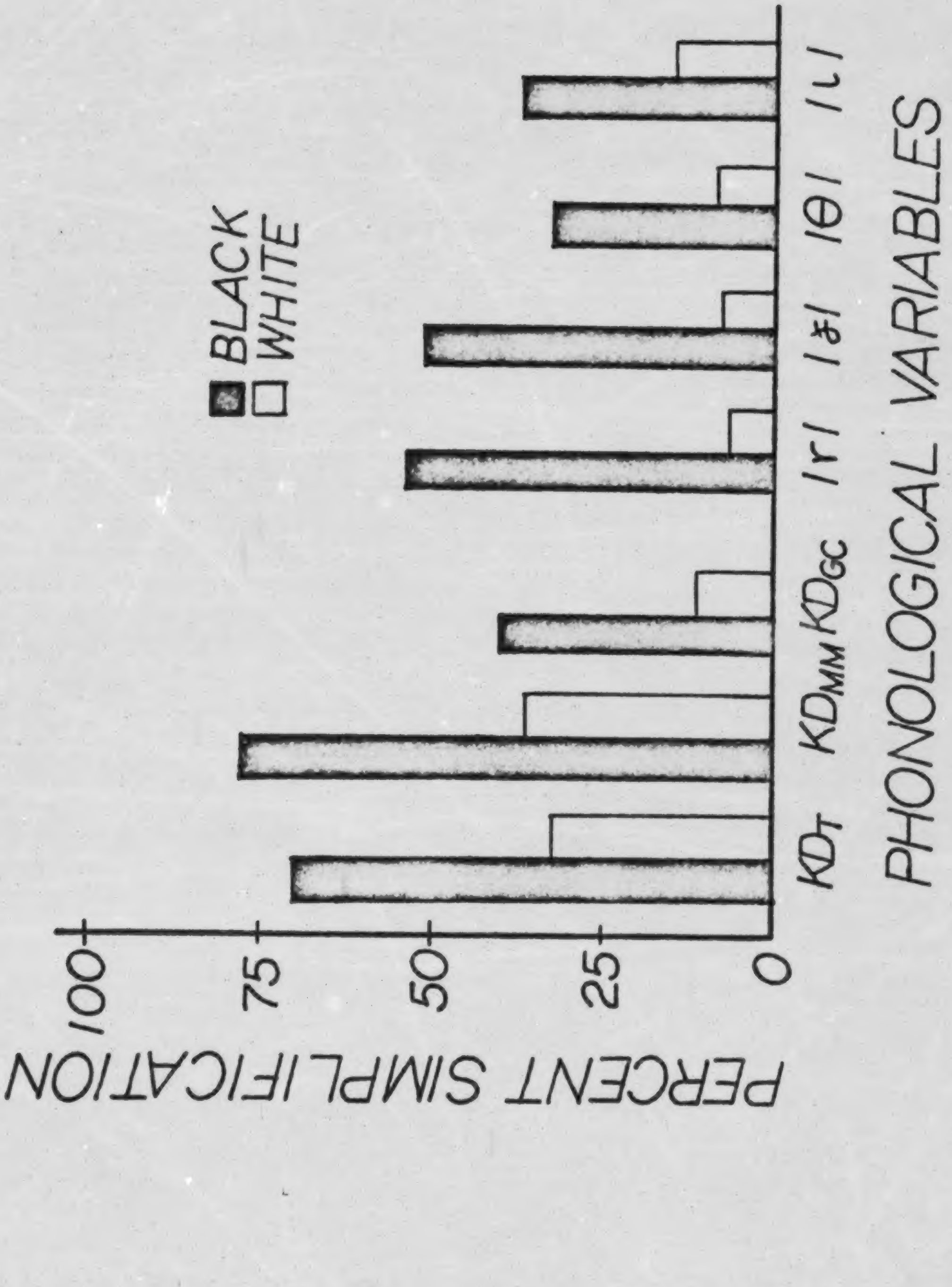
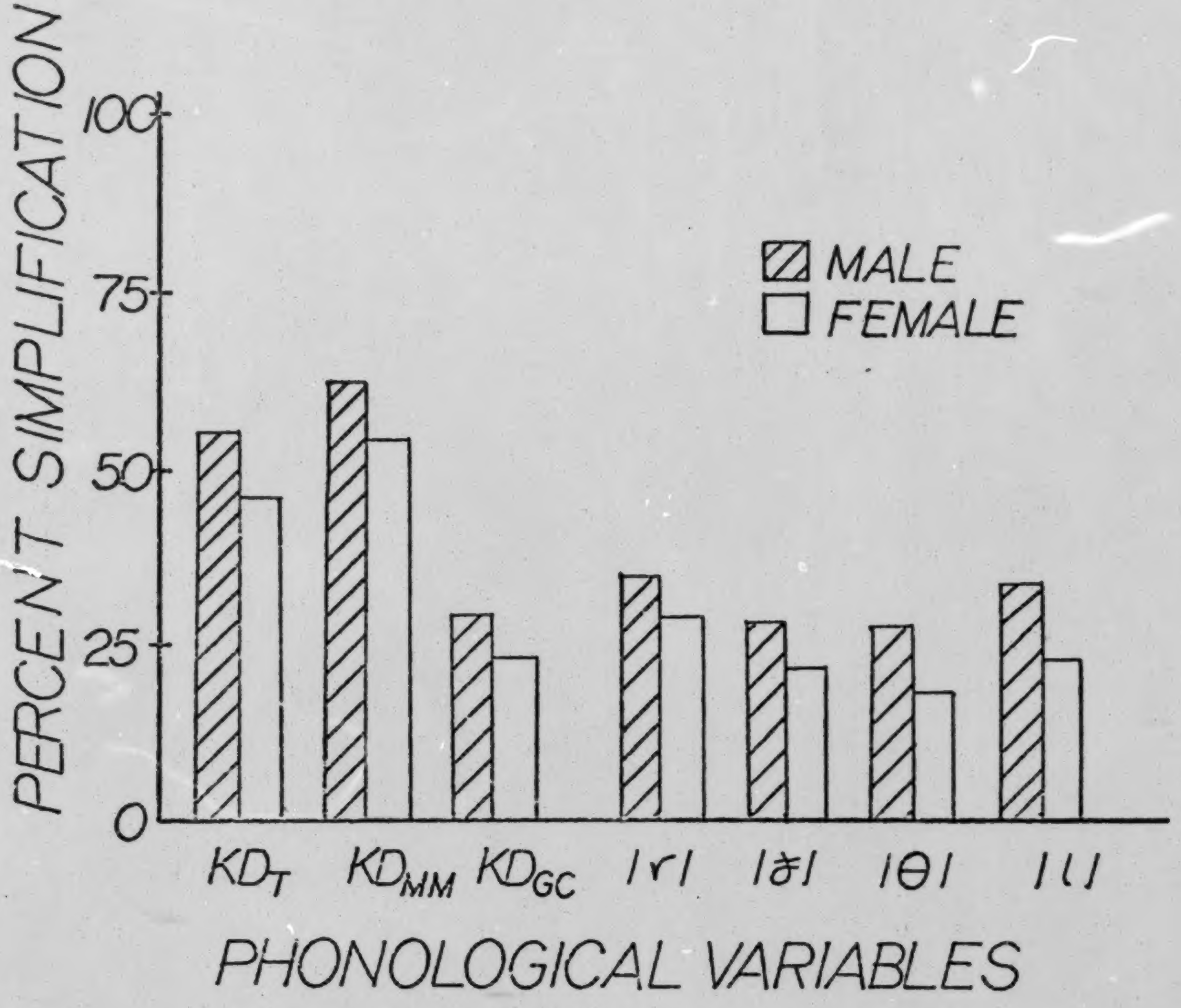

BLACK
WHITE
PERCENT SIMPLIFICATION
100
75
50
25
0
KD_T
KD_{MM}
KD_{GC}
/r/
/ɚ/
/θ/
/l/
PHONOLOGICAL VARIABLES

Figure 4

The Sex Effect, Without Reference to Level of Education or
Race, on Frequency of Simplification

(See Table 2. for statistically significant differences)


PERCENT SIMPLIFICATION
100
75
50
25
0
▨ MALE
☐ FEMALE
KD_T
KD_{MM}
KD_{GC}
/r/
/ð/
/θ/
/l/
PHONOLOGICAL VARIABLES

(.05) of this hypothesis in its entirety--that is, for each one of the seven phonological variables. Table 3 indicates that the null hypotheses for four of the variables KDmm, /ð/, /θ/ and /l/ could be rejected even at the .001 level of significance; for two, KDgc and KDtotal, at the .01 level; and for the remaining one, /r/, at the .05 level. Figure 2 shows just where it is within the three levels of education that the sources of significant differences lie. On these education-level differences, the "scores" represent a combination of both Black and White performance at each of the three levels. An analysis of the data presented in Figure 2 indicates that G-2 and SH students simplify more than educated adults on six of the variables--all of them except /r/; and further, that G-2 students simplify significantly more than Senior High students on only two of the seven variables, /θ/ and /l/. On KDtotal, percentage of simplification by G-2 and SH is the same. That is, 52 percent of the time consonant clusters ending in -d or -t occur in the speech of these Deep-South school children as single consonants, with the -d or -t being deleted (as in most ⟶ mos', and passed ⟶ pas'). Thus it seems that on only two of the seven variables, /θ/ and /l/ are there any differences to speak of, with G-2 either substituting other sounds for these consonants or deleting them entirely more often than do senior high students. A possible explanation which might or might not have a bearing in this particular situation was suggested by both Fry (1966) and Templin (1966). They found that from a developmental perspective some sounds are intrinsically more difficult to produce than some others in that they require the use of more muscles, closer control of the amount and timing of movement, and generally finer coordination. /l/ and /θ/ are among these more difficult sounds.

An examination of Figure 2 shows clearly that, with certain exceptions, *adults simplified the least*. SH students simplified more, and G-2 still more. Notice that for /r/ the height of the bars on the graph is exactly the inverse of what might be expected in regard to education level. *The distribution for r-lessness is unlike the distribution for all the other tests*. One might arrive at one of the following conclusions: 1) as one matures he learns to drop *r's*; 2) that the fashion for pronunciation of *r's* is changing. It would seem that the second is the more reasonable of the two conclusions.

To summarize briefly concerning Figure 2: 1) with certain exceptions, the more educated the speaker, the less he simplifies; 2) this "certain exception" for educated adults is the variable /r/; 3) the two lower levels of education, G-2 and SH, appear to lie in close proximity to one another in frequency of simplification for all variables except /θ/ and /l/.

In view of the two preceding statements it would seem reasonable to conclude that since Education Level Differences are statistically significant for all seven variables, the real "differences" are those between two levels of education--with middle class college-educated adults at one pole and lower socio-economic school students at the other.

Racial differences

The null hypothesis of no significant differences between the two races in relative frequency of simplification of each of the seven variables was tested. On the basis of the F-ratios given in Table 3, I reject this hypothesis for all the variables at the .001 level of significance and conclude that Deep-South Blacks and Whites are not speakers of the same dialect with regard to the seven phonological features being investigated. Figure 3 shows the consistent Racial Effect on performance, without reference to level of education or sex. The principal sources of variation within race will be discussed later (see Appendix E).

Sex differences

The null hypothesis of no significant differences which could be attributed to sex in the relative frequency of simplification of each of the seven variables was tested. The F-ratios in Table 3 indicate that I should reject this hypothesis with regard to the variables /l/, /r/, and /ŋ/ at the .05, .01, and .001 levels of significance, respectively. Figure 4 shows the direction of the significant differences--the males simplify with consistently greater frequency than do the females on every one of the variables. The weightings on the Sex Effect of the sources of variation from the three education levels and from the two races will be discussed later (see Appendix E).

Significant interactions

The null hypotheses of no significant interactions between 1) education level and race, 2) education level and sex, 3) race and sex, and 4) education level, race, and sex in the use of each of the seven phonological variables were tested. Table 3 indicates significant E x R interactions on three of the variables: /r/, /ɝ/, and /l/; significant E x S interaction on /r/ only, and significant R x S interactions on /r/ and /ɝ/. The sources of variation contributing to the interactions of these main effects are shown clearly in Figures 10-16 in Appendix E.

Regional Black English: standard and non-standard

Figure 5 presents a graphic comparison between aspects of regional standard Black English and the speech of Black LSES students at two levels of development. An unexpected developmental trend seems apparent: as Black students progress from G-2 to SH, they seem to become more divergent from the "norm" of educated Blacks rather than to progress toward this norm with chronological maturity. The trend for these Blacks seems to be for educated adults to simplify least, G-2 more than Ed but less than SH, and SH most of all on all the variables except /θ/ and /l/. It is perhaps significant that none of these SH Black students had been in integrated schools for longer than two years; the G-2 Blacks, on the other hand, had begun their school experience in integrated schools. Figure 5 seems to indicate that there is a significant difference in pronunciation of all the variables except

/r/ between Black educated adults and Black LSES school children at both levels of education. Thus, I conclude that there is a significant difference between regional standard Black and regional non-standard Black pronunciation of all the variables except /r/, and that even with /r/, educated Blacks simplify somewhat less frequently than do Black school children. I further conclude that, though the general trend is for SH to simplify more than G-2, Black SH and G-2 students are apparently members of the same population: speakers of non-standard Black English.

Regional White English: standard and non-standard

Figure 6 compares standard and non-standard White English along the same parameters as Figure 5 does for Blacks. Contrary to what was observed for the Black students, the White students show a general progression toward the adult norm as they progress from G-2 to SH. It appears that the differences between ED and SH Whites are significant on only one variable, /r/, the same variable on which Blacks are closest together at the three education levels. In view of the data presented in Figure 6, I conclude that there is no significant difference between regional standard White pronunciation and that of SH students of lower SES on any of the variables except /r/, and that on this variable the direction of the difference is toward more r-lessness with the college-educated adults. This is just the opposite of what is true for the Blacks: the higher the education level, the less r-less. ED Whites appear

Figure 5

The Effect of Education Within Race (Black) on Performance
on each of the Seven Phonological Variables

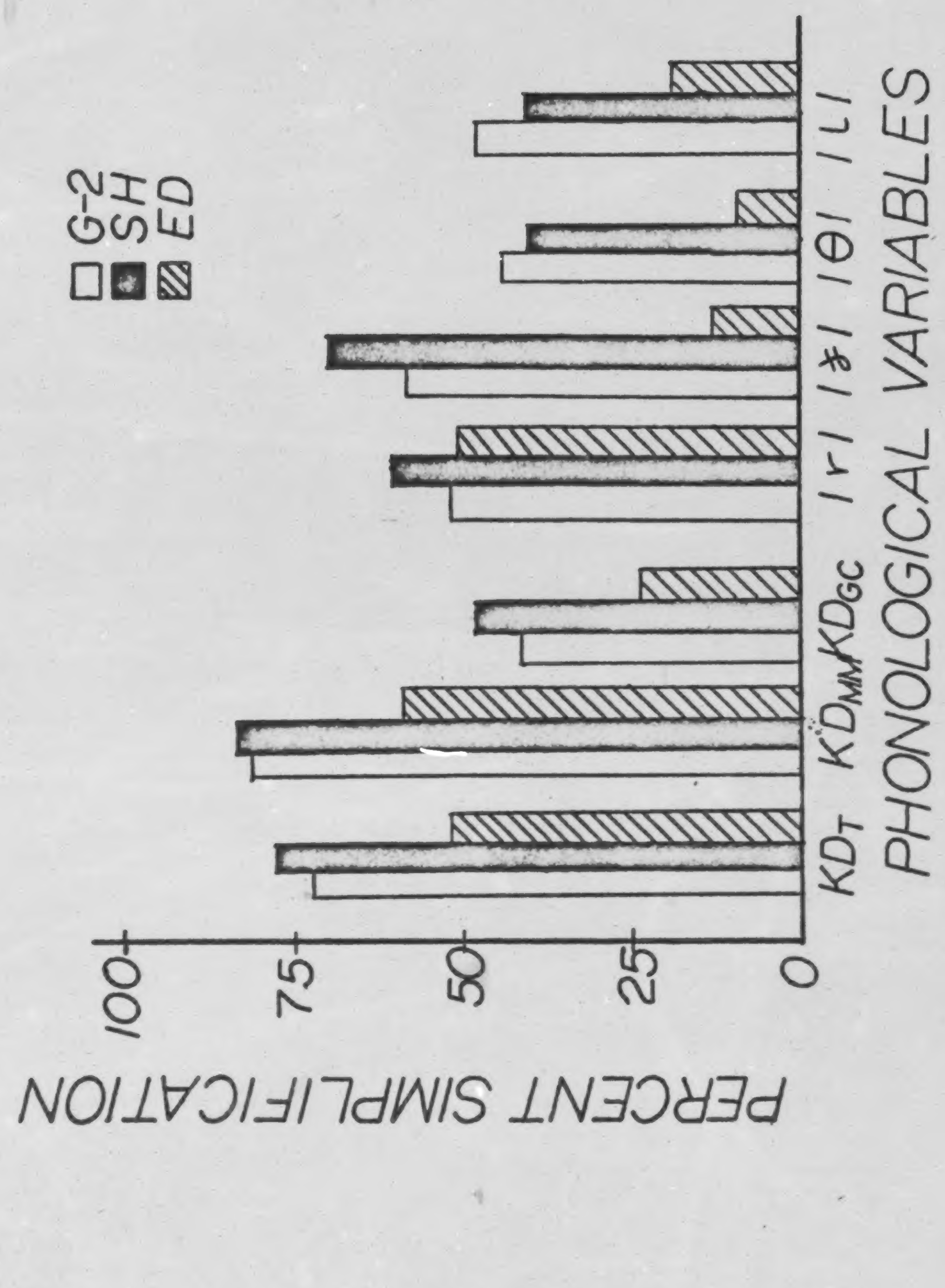
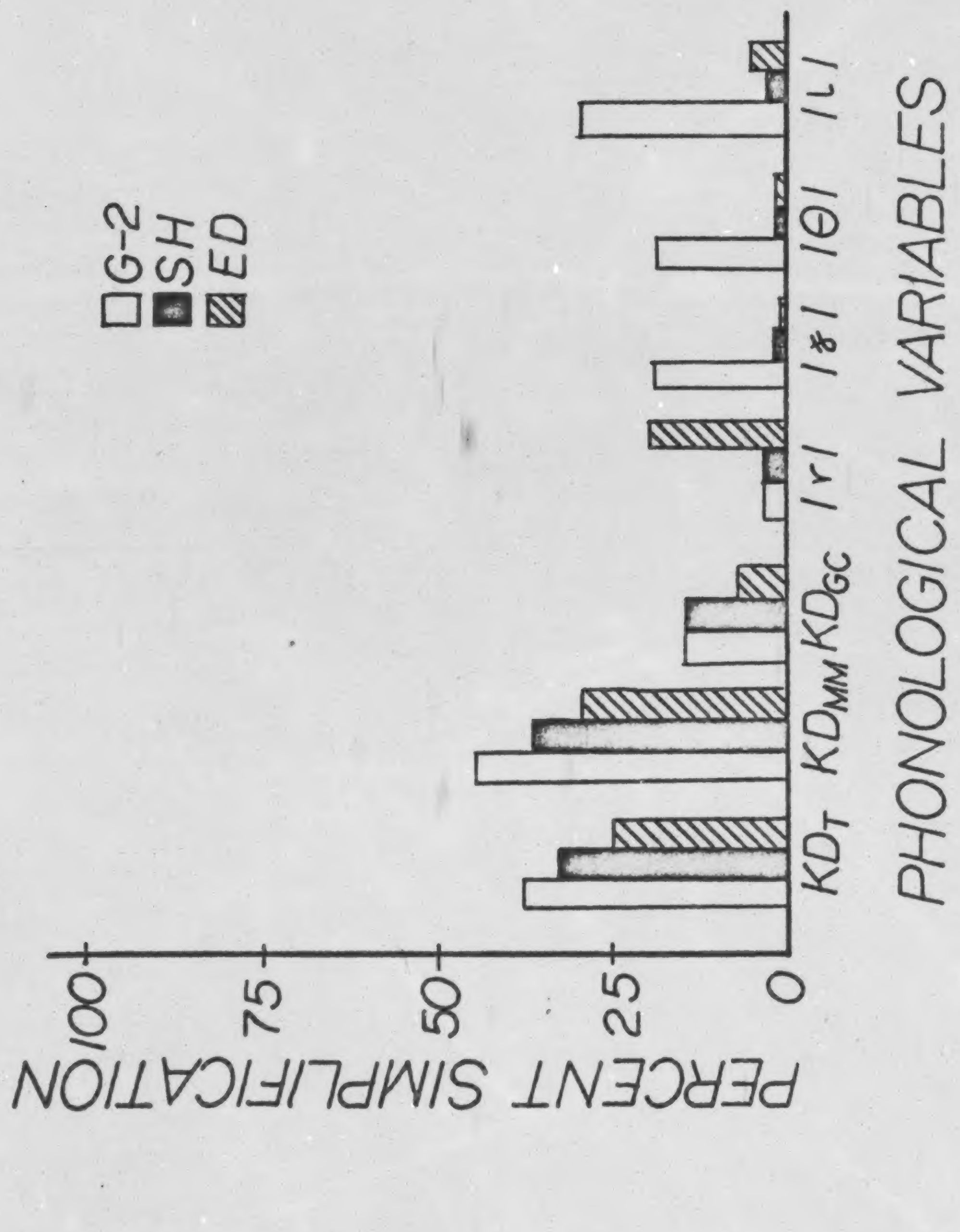

□ G-2
▨ SH
▧ ED
PERCENT SIMPLIFICATION
100
75
50
25
0
KD_T
K'D_MM
KD_GC
/r/
/ǯ/
/θ/
/l/
PHONOLOGICAL VARIABLES

Figure 6

The Effect of Education Within Race (White) on Performance
on each of the Seven Phonological Variables


□ G-2
■ SH
▨ ED
PERCENT SIMPLIFICATION
100
75
50
25
0
KD_T
KD_{MM}
KD_{GC}
/r/
/ð/
/θ/
/l/
PHONOLOGICAL VARIABLES

to be significantly more r-less than are either SH or G-2 Whites. Further, SH and G-2 Whites appear to be members of the same population in their use of all the variables except /ƒ/, /θ/ and /l/*. At the same time, however, it appears that G-2 and Ed Whites are not members of the same population on any of the variables except KDgc. Thus, it appears that while Black LSES students progress away from the educated adult norm with increasing chronological maturity, White students progress toward the norm with increasing chronological maturity.

A comparison of Figures 5 and 6 gives an overview of both education level and racial differences on each of the seven phonological variables. The following is a summary concerning the findings illustrated in Figures 5 and 6.

1) By contrasting the height of the black bars on the two figures, one may conclude that SH Blacks and SH Whites are members of significantly different populations in the use of all seven variables.
2) G-2 Blacks and G-2 Whites may be compared through examining the heights of the white bars on the two figures. This comparison leads to the same conclusion as for the SH Black and White students: G-2 Blacks and Whites are members of significantly different populations in the use of all seven variables.

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*A possible explanation from the perspective of language development and difficulty of articulation of certain sounds has been given earlier.

3) Finally, these two figures show Education Level differences on all seven variables within each race.

At this point, all of the hypotheses stated for this study have been either accepted or rejected. The conclusions have been stated and all the sources of variation contributing to significant differences indicated on F-ratio Tables 2 and 3 are accessible in Figures 1-6 and 10-16. Each of the Figures 1-6 present data concerning all seven phonological features under investigation on one figure. The figures in Appendix E present data concerning the individual phonological variables--a single variable is presented on each of these seven figures.

Linguistic Factors

Differences within race and between races: the effect of linguistic environment on the simplification of the phonological variables.

The findings of this study indicate that grammatical constraints consistently weaken the operation of the phonological rule for consonant cluster simplification for both Black and White speakers--at all three levels of education. That is, all groups in both races delete the final -d or -t in grammatical clusters with less frequency than is the case for monomorphemic units. For SH and G-2 Blacks the linguistic environment, that is, whether the -t or -d is followed by a consonant, vowel, or major constituent break, seems to have no appreciable effect on the operation of the rule. This finding is contrary to the findings of Labov. This would seem to be a difference, then, in rural-Southern and urban-Northern non-standard Black English. For the Whites, however, as is the case for the ED Blacks, consonant clusters are simplified with significantly greater frequency in what other researchers have found to be the most favorable environment for simplification--before a following consonant, and, generally, least in the environment found to place the greatest constraint on the operation of the deletion rule--before a following vowel. Further, Blacks simplified more than did Whites at all levels. ED Blacks simplified more than Whites at either G-2, SH, or ED levels, but less than Blacks at G-2 or SH. Figures 17 and 18 in Appendix F and Figures 23 and 24 in Appendix G reflect these findings and clearly indicate that grammatical constraints do indeed consistently weaken the operation of the phonological rule for groups of Blacks and Whites in each of the three linguistic environments.

Data concerning r-lessness is presented in Appendix F, Figures 19 and 20 and Appendix G, Figure 25. Blacks are significantly more r-less than are Whites at every level and in all four linguistic environments--except that ED Blacks simplify slightly but non-significantly less than ED Whites in the intervocalic (V_V) linguistic environment. For Blacks this position seems to be the most favored one for retaining the /r/, with the other three linguistic environments seeming to have no appreciable effect. R-lessness is negligible in all environments for White school children at both levels of education. Although among Blacks, education level seems to make no general difference in frequency of r-lessness, such is not the case with Whites. ED Whites are significantly more r-less than are the lower education levels (which are about the same) except in intervocalic positions. In this linguistic environment simplification is, for Whites, negligible at all three levels of education.

Concerning l-lessness, for the Blacks, there is little difference between G-2 and SH in any linguistic environment. All three education levels simplify the variable most preceding a major constituent break. There does seem to be a significant difference, however, between Black ED and LSES students. Among the Whites, there is a significant difference between G-2 and the other levels. As is the case with the Blacks, all groups simplify /l/ most preceding a major constituent break. ED and SH Whites lie in close proximity in frequency of simplification of /l/ but are appreciably different from the G-2 whites. ED Whites simplified slightly more than SH Whites. Perhaps the similar phonetic features of /r/ and /l/ account for this since the ED Whites are significantly more r-less. (See Appendix G, Figures 21 and 22.)

For Black SH and G-2 students, there is no significant difference in simplification of /£/, /θ/, and /l/. However, such is not the case in comparing these two groups with ED Blacks. The difference between the latter and former levels of education is such that they do not seem to be members of the same population in the use of these three variables. For the Whites, SH and ED appear to be significantly different from G-2 on all three variables. Progression toward adult norms, for White students, seems apparent. (See Appendix G, Figure 26.)

Northern-Urban/Southern Rural Comparisons

Both Black and White SH students more frequently chose the correct pronunciation for the homograph read in the sentences containing contextual signals* than they did with sentences containing the past tense marker -ed** to signal the /rɛd/ pronunciation. Figure 7 shows that the Whites pronounced the homograph correctly 100 percent of the time when given a contextual signal but that some constraint, probably their consonant cluster simplification rule, caused them (consciously or unconsciously) to ignore the -ed marker as a cue for the correct pronunciation 67 percent of the time. Blacks did not do as well with the contextual signals as did the Whites. Perhaps sentence No. 2 has some bearing on this. Some of the Blacks did not seem to show overt agreement between verbs and third-person singular subjects in the present tense so that Tom /rid/ all the time might have been a perfectly grammatical sentence for the 6 of the 20 who interpreted and/or read the sentence this way. None of the Whites misread this sentence. The consonant cluster simplification rule was operative for the Blacks to a greater degree than for the Whites in causing them to "ignore" the -ed marker as a cue for /rɛd/.

The general trend for males within each race to simplify more than females is also evident in Figure 7.

~~In~~ comparing the 20 Southern Rural Black SH speakers of non-standard Black English in this study with 46 Northern-

*See Appendix A, /rid/and/r d/, sentences 1, 2, 8.

**See Appendix A, /rid/and/r d/, sentences 4, 6, 9.

Figure 7

A Comparison of the Effect of Contextual Signals
Indicating Past Tense and the -ed Marker on
Correct Pronunciation of the Homograph
read by Senior High Students

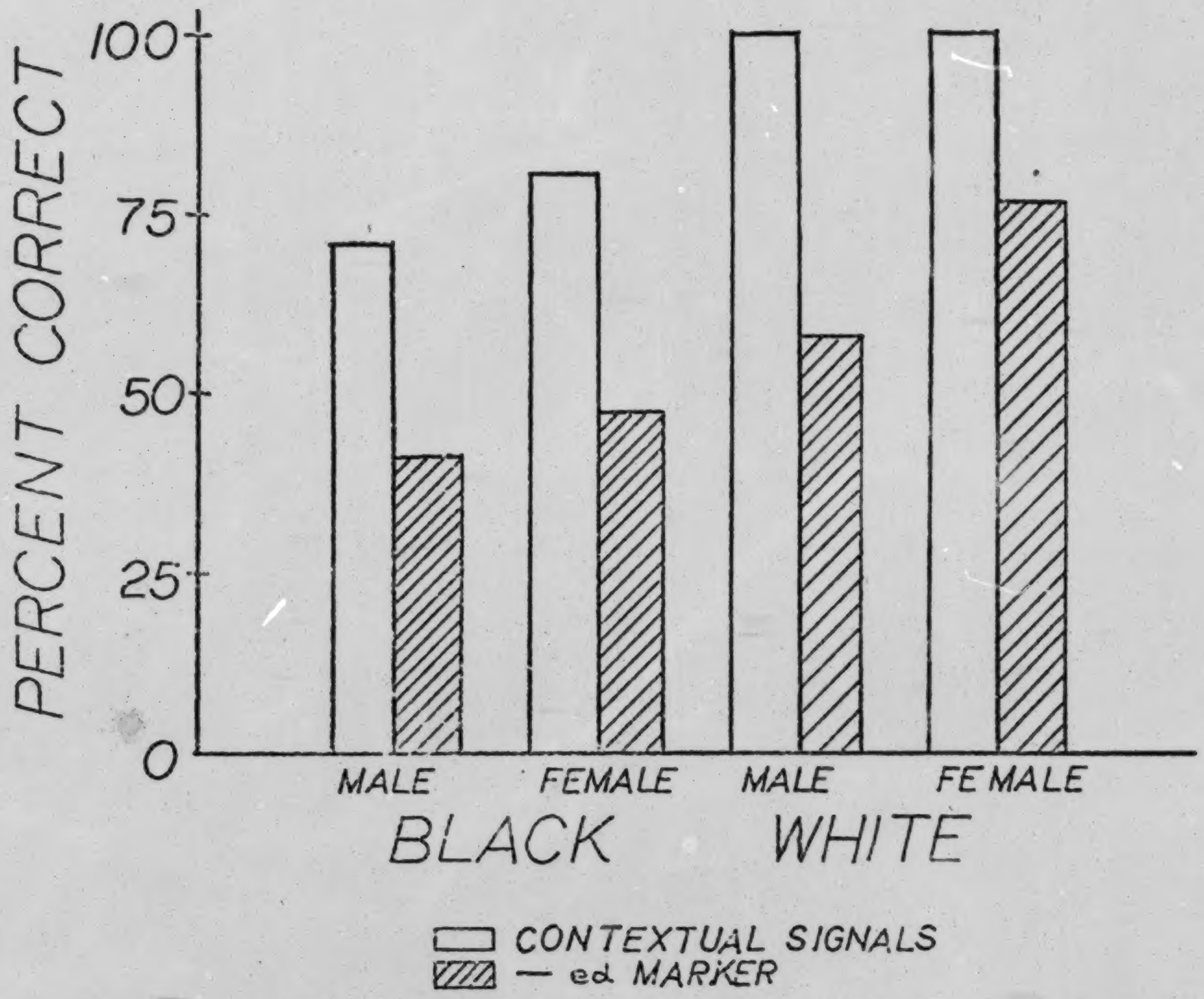
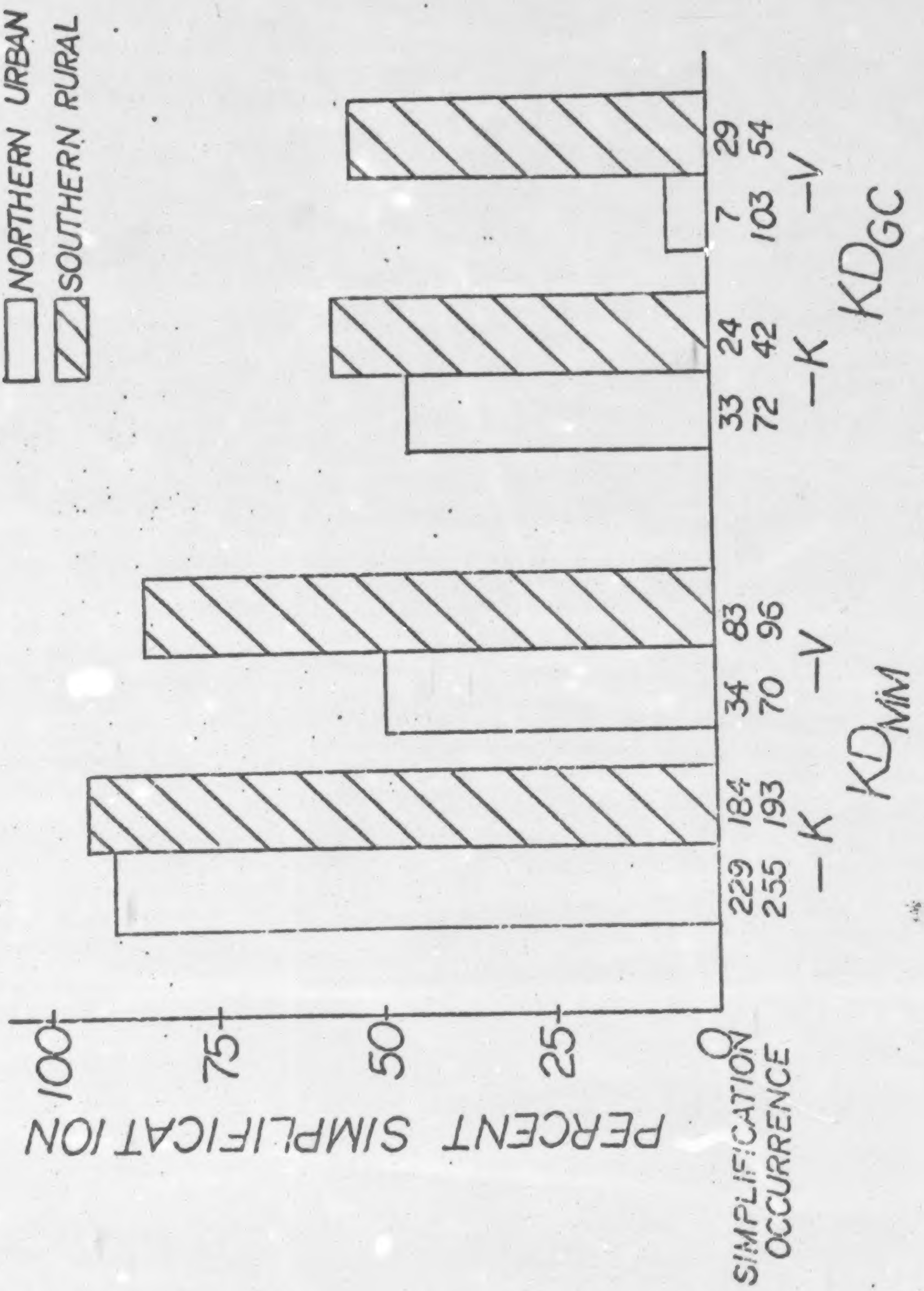

PERCENT CORRECT
100
75
50
25
0
MALE
FEMALE
MALE
FEMALE
BLACK
WHITE
CONTEXTUAL SIGNALS
— ed MARKER

Figure 8

(KDmm and KDgc): Northern-Urban and Southern-Rural

A comparison of the findings of Labov's study (1968)
and this study: the proportion of -t, -d deletion in
consonant clusters for 11 Northern-Black and 9
Southern-Black adolescent males in single interviews.
The ratio of number of simplifications to number of
occurrences of each variable in its linguistic environment
is given below the bars in the graph


NORTHERN URBAN
SOUTHERN RURAL
PERCENT SIMPLIFICATION
100
75
50
25
0
SIMPLIFICATION
OCCURRENCE
229
255
184
193
— K
34
70
83
96
—V
KD_{MM}
33
72
24
42
—K
7
103
29
54
—V
KD_{GC}

Urban speakers of NBE in Labov's study (1968, p. 142) in performance on these sentences, I find that the two groups do not appear to be significantly different. My informants chose the correct pronunciation with contextual signals 75 percent of the time; Labov's, approximately 84 percent. In the sentences where the pronunciation clue for read was the -ed marker, my informants pronunced /rɛd/ 38 percent of the time; Labov's, approximately 41 percent. Since the 19 Southern-Rural White SH informants chose the correct pronunciation 100 percent of the time with contextual signals and 67 percent of the time with the -ed marker as a signal, it would seem reasonable to conclude that these Southern-Rural LSES SH Whites are significantly different from speakers of both Southern-Rural NBE and Northern-Urban NBE in their performance on these sentences.

Figure 8 presents a second Northern-Urban/Southern-Rural comparison. There seems to be no significant difference between the two groups in simplification of either KDmm or KDgc in the linguistic environment before a consonant. The significant differences between the two groups are in the simplification of consonant clusters before vowels, the linguistic environment which, according to Labov, is least favorable to the operation of the deletion rule. This was indeed the case for Labov's Northern-Urban informants. However, a following vowel did not seem to place any significant constraints on the strength of Southern-Rural informants' consonant cluster simplification rule. Notice however, that grammatical constraints consistently weakened the operation of the phonological rule for both groups. Linguistic environment seems to be a stronger factor in placing constraints on the consonant cluster simplification rules of Northern-Urban Blacks than on the consonant cluster simplification rules of Southern-Rural Blacks.

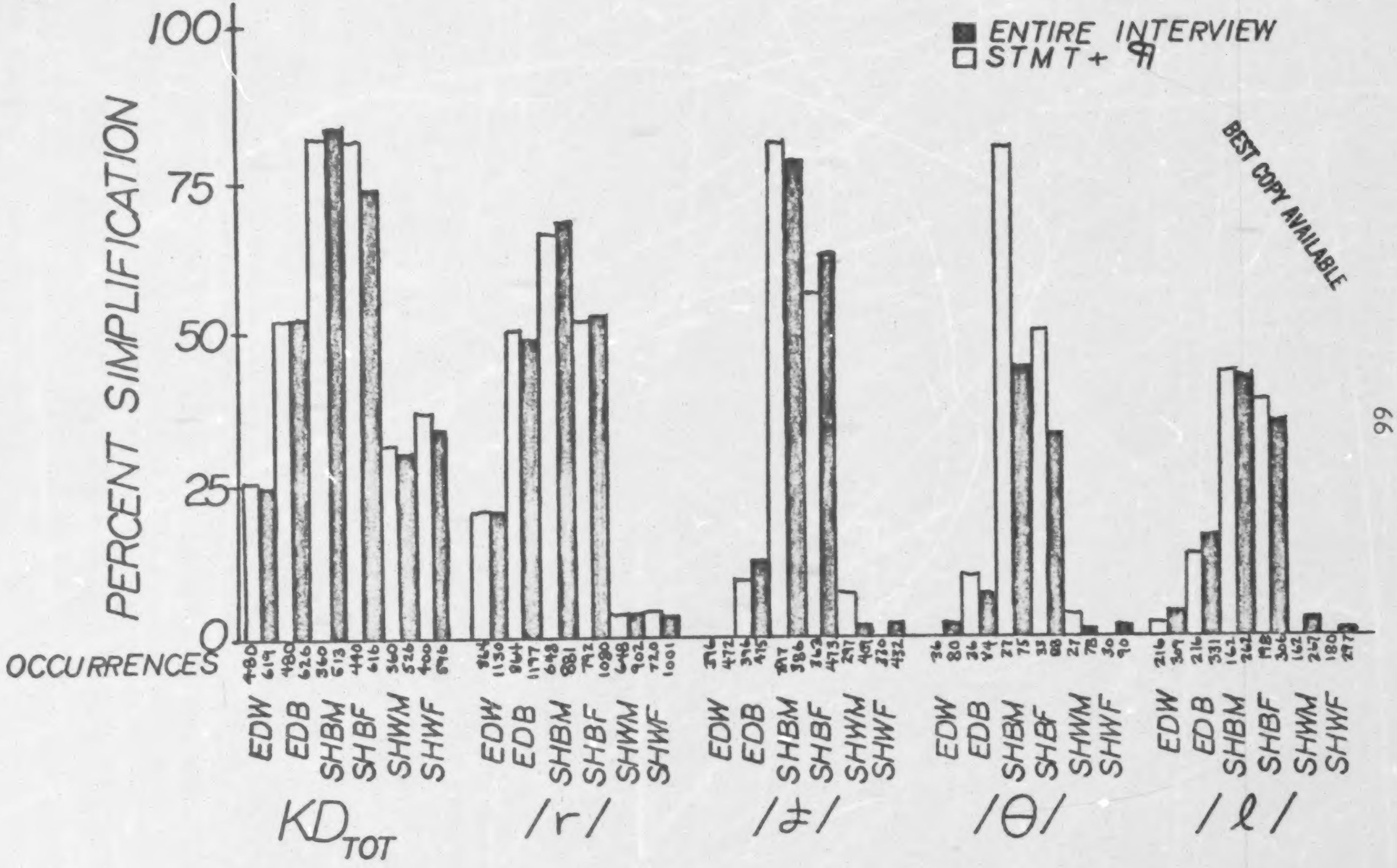
Methodology: How Much Is "Enough" Data

Wolfram has suggested (1969) that research design could be further refined by investigations to determine the most economical sample size for a reliable study of social dialects. Noting that linguistic behavior is more homogeneous than some other types of behavior investigated by sociologists, and commenting on the detailed nature of certain types of linguistic analysis, he suggested that it is impractical to work with samples the size of some sociological surveys. The determination of a minimally adequate representation for the study of social and regional dialects seems to be an urgent need. In the present study a cursory investigation was made to determine just how much data is enough data to be a reliable measure of the percentage of simplification of five phonological variables in the speech of six groups: ED White and Black speakers; SH White males and females; and SH Black males and females. Figure 9 gives the results of this cursory investigation. It is clearly evident that on every variable except /θ/, analysis of the smaller quantity of data taken from the part of the interview which was much more easily analyzed than the conversation, the SRRTT and the remaining reading, revealed striking consistency with results of the analysis of the entire corpus of data in percentage of simplification by each group and on each variable. This finding seems to be of utmost significance in view of the fact that analysis of the STMT and ¶I took about one-fourth the time that analysis of the entire interview took. The collection of the data for the shorter analysis requires less than half the time that collection of all the data required. The evidence seems to indicate that with slight modification to include more occurrences of the /θ/ variable, the STMT and ¶I would comprise a reliable elicitation instrument with which to repeat this study in other areas. Further investigation is needed to verify this conclusion.

Figure 9

A Comparison of the Results Obtained from Analysis of Just the STMT and Paragraph Reading with the Results Obtained from Analysis of the Entire Interview

The number of occurrences of each variable in both sample sizes is listed beneath the bars in the graph


■ ENTIRE INTERVIEW
□ STMT + ¶
PERCENT SIMPLIFICATION
100
75
50
25
0
OCCURRENCES
480 619 480 626 360 613 440 616 360 526 400 596
864 1130 864 1177 648 881 792 1080 648 902 720 1001
316 472 316 415 317 386 243 473 297 401 220 432
36 80 36 94 27 75 33 88 27 78 30 90
216 309 216 331 161 262 118 306 162 247 180 277
EDW EDB SHBM SHBF SHWM SHWF
KD_{TOT}
/r/
/ǂ/
/θ/
/ℓ/

V. SUMMARY OF CONCLUSIONS

Having investigated the linguistic behavior of three major groups of native speakers of a rural Deep-South county with regard to certain phonological variables, I propose the following general conclusions:

1) There are two regional standards in the Rural Deep-South County in which this research was conducted--a standard for Black English and a standard for White English. The two standards differ in relative frequency of simplification.

   Educated Blacks simplify with greater frequency on every one of the seven variables than do educated Whites. The differences are statistically significant on five of these variables.

2) Differences attributable to education level, without regard to race or sex, are statistically significant for all seven variables; and further, the data indicates a dichotomy: the real "differences" are those between college-educated adults and both levels of LSES school children.

3) Racial differences, excluding consideration of education level or sex, are highly significant for all seven of the phonological variables. Consequently it is clear that Rural Deep-Southern Black and White

natives are not speakers of the same dialect.

4) Males, across race and education level, simplify with consistently greater frequency on every variable than do the females. This sex difference is statistically significant for /l/, /r/ and /£/. Considering race within sex, the Sex Effect predominates in the Blacks while it is seemingly attenuated in the Whites.

5) The statistically significant interactions are these: E x R, on /r/, /£/, and /l/; E x S on /r/; R x S on /r/ and /£/.

6) There is a significant difference between Black regional standard pronunciation and the pronunciation of both SH and G-2 Black LSES students for all the variables except /r/ (with G-2 being less different from ED adults than are the SH students). That is, ED Blacks simplify least; G-2 next; and SH Blacks most.

7) There seems to be no significant difference between regional standard White pronunciation and that of White SH students of lower SES on any of the variables except /r/. However, there does seem to be a significant difference between ED Whites and G-2 Whites on six of the variables.

8) From the two preceding conclusions, it appears that while Black LSES students (who were in segregated, all-Black school prior to 1969) have progressed away

from the educated Black adult norm with increasing chronological maturity, White students have progressed toward the educated White adult norm.

9) SH Blacks and SH Whites are members of significantly different populations in the use of all seven variables; the same is true for G-2 Blacks and G-2 Whites.

10) Having compared the 20 Southern-Rural Black SH speakers of non-standard Black English, in this study, with 46 Northern-Urban speakers of NBE, in Labov's (1968) study, I found that the two groups did not appear to be significantly different. Comparing my 19 SH White informants with Labov's 46 Blacks, I found evidence to conclude that Southern-Rural LSES are significantly different from both Southern-Rural NBE and Northern-Urban NBE. This finding refutes, for the area in question at least, the speculations of some language researchers concerning Southern White and Southern Black non-standard dialects.

11) There is no significant difference between Labov's Northern-Urban and the Southern-Rural Black adolescent males in simplification of either KDmm or KDgc in the environment before a consonant. The significant differences are in the effect of a following vowel on constraining the operation of the deletion rule. For Labov's informants the vowel inhibited simplification somewhat; for my informants, the following

vowel seemingly had no effect. Grammatical constraints, however, consistently weakened the operation of the phonological rule for both groups.

12) Linguistic environment seems to be a stronger factor in placing constraints on the consonant cluster simplification rules of Northern-Urban Blacks than on those of Southern-Rural Blacks.

13) The evidence from the cursory methodological investigation to determine "how much data is enough" reveals a striking consistency between results obtained from analysis of a part of the interview and results obtained after a much more time-consuming analysis.

Some possible substantive contributions of this research are as follows:

1) The rural Southerners of this study can be compared with
   A) Urban Southerners
   B) Rural Northerners
   C) Urban Northerners

2) White and Black middle class "standard" speakers in the Deep South have been compared.

3) The speech of LSES school children has been compared within and between races at two widely separated grade levels, and has also been compared with the local standards: non-standard Black with standard Black--and non-standard White with standard White.

It is my hope that this research has made available data which will contribute toward resolving the long-unanswered questions:

1) Are Southern and Northern varieties of Black English essentially alike, and if not, in what ways do they differ?
2) What is the exact relationship between the speech of Southern Whites and Negroes of comparable socio-economic classes?
3) How much data is enough data for a reliable measure of the linguistic behavior of an individual or group?

APPENDICES

APPENDIX A

ELICITATION MATERIALS FOR INTERVIEWS

SHORT-TERM-MEMORY TEST

I. SENTENCES

1. He is our best player.
2. He told me to taste the candy.
3. Are there any wasps in that wasp nest?
4. He walked right past Henry's new car.
5. The court fined him twenty dollars for speeding.
6. Did you ask to sit in that desk?
7. He laughed at me.
8. I walked away from him.
9. The sand hurts my eyes.
10. Her old friend came for dinner.
11. The bird has a hurt wing.
12. The ghost scares students.
13. That fact is something everybody know.
14. The mist fell on their flowers.
15. A button popped off his shirt.
16. The fact has been proved.
17. That boy sniffed airplane glue yesterday.
18. Larry rolled across the court.
19. I want you to hold out your hand.
20. Have you ever been to London or Paris?
21. He is the fastest boy on our team.
22. I told you to stop that.
23. Our old enemy showed up again.
24. He walked past one of his friends.
25. The desks in this row are crooked.
26. We were testing the ghosts.
27. Your best Uncle just came over here.
28. Can you find an ant hill?
29. This test is easy.
30. The old horse ran fast

31. Ask me about our basketball team.
32. He can lift Alice over his head.
33. That was the best he could do.
34. He works for his Aunt Carol.
35. He missed Jane when she left.
36. Can you lift sixty pounds?
37. They act funny all the time.

II. READING

A. Hungry Sam*

I remember where he was run over, not far from our corner. He darted out about four feet before a car, and he got hit hard. We didn't have the heart to play ball or cards all morning. We didn't know we cared so much for him until he was hurt.

There's something strange about that--how I remember everything he did; this thing, that thing, and the other thing. He used to carry three newspapers in his mouth at the same time. I suppose it's the same thing with most of us; your first dog is like your first girl. She's more trouble than she's worth, but you can't seem to forget her.

B. /rɪd/and/rɛd/**

1. Last month I read five books.
2. Tom read all the time.
3. So, I sold my soul to the devil.
4. When I passed by, I read the posters.
5. Don't you dare hit your dear little brother!
6. When I liked a story, I read every word.

---

*These two paragraphs were taken from Labov, 1966 (The Social Stratification...) Appendix A, p. 597.

**These nine sentences are taken from Labov, 1968 (A Study of Non-Standard English) p. 140.

7. They cost a nickel yesterday, but today they cost a dime.
8. Now I read and write better than Alfred does.
9. I looked for trouble when I read the news.

III. STIMULUS-RESPONSE-REACTION-TIME TEST

A. Months:*

STIMULUS	EXPECTED RESPONSE
February	March
September	October
January	February
July	August
November	December
. . .	. . .
May	April
February	January
October	September
December	November

B. Cardinal/Ordinal Numerals**

STIMULUS	EXPECTED RESPONSE
three	third
six	sixth
one	first
five	fifth
fourth	fortieth
nine	ninth
eleven	eleventh
fourteen	fourteenth
thirty	thirtieth
twelve	twelfth
seven	seventh
two	second
ten	tenth
forty-four	forty-fourth
eight	eighth
four	fourth

IV. CONVERSATION

---

*The G-2 informants were not asked to give the preceding months for the last four responses. The stimulus was altered, and they continued to give the following month as response.

**The G-2 informants were asked to give the names of all the grades in school (first-twelfth). The remaining responses were elicited in the same manner as for the older informants.

I. SHORT-TERM-MEMORY TEST (Second Grade - Question/Answer)

1. Is he our best player?
2. Has he told you to taste the candy?
3. Are there any wasps in that wasp nest?
4. Has he walked right past Henry's new car?
5. Has the court fined him twenty dollars for speeding?
6. Did you ask to sit in that desk?
7. Has he laughed at me?
8. Have you walked away from him?
9. Does the sand hurt your eyes?
10. Did her old friend come for dinner?
11. Does the bird have a hurt wing?
12. Does the ghost scare students?
13. Is that fact something everybody knows?
14. Did the mist fall on their flowers?
15. Has a button popped off his shirt?
16. Has the fact been proved?
17. Has that boy sniffed airplane glue yesterday?
18. Has Larry rolled across the court?
19. Do you want me to hold out my hand?
20. Have you ever been to London or Paris?
21. Is he the fastest boy on our team?
22. Have you told me to stop that?
23. Has our old enemy showed up again?
24. Has he walked past one of his friends?
25. Are the desks in this row crooked?
26. Were we testing the ghosts?
27. Has my best uncle just come over here?
28. Can you find an ant hill?
29. Is this test easy?
30. Did the old horse run fast?
31. Did you ask me about our basketball team?

32. Can he lift Alice over his head?
33. Was that the best he could do?
34. Does he work for his Aunt Carol?
35. Did he miss June when she left?
36. Can you lift sixty pounds?
37. Do they act funny all the time?

II. READING - Second Grade - Question/Answer

B. /rid/and/rɛd/

1. Did you read five books last month?
2. Does Tom read all the time?
3. Have you sold your soul to the devil?
4. When you passed by, did you read the posters?
5. Did I dare to hit my dear little brother?
6. When you liked a story, did you read every word?
7. Did they cost a nickel yesterday? Do they cost a dime today?
8. Do you read and write better than Alfred does?
9. Did you look for trouble when you read the news?

WORD LIST FOR ORIGINAL SENTENCES - Second Grade

1. best
2. lift
3. sand
4. hold
5. raised
6. aimed
7. friend
8. fast
9. find
10. past
11. old
12. just
13. taste
14. stand
15. missed
16. laughed

APPENDIX B

SCORE SHEETS FOR DATA ANALYSIS

CONSONANT CLUSTER (KD) SIMPLIFICATION SCORE SHEET

NAME____________________BLACK-WHITE________MALE-FEMALE_____AGE____

EDUCATION LEVEL____________SCHOOL______________________________

VARIABLE	KDmm			KDgc		
PHONOLOGICAL ENVIRONMENT	(1) _K	(2) _V	(3) _####	(4) _K	(5) _V	(6) _###
I. SHORT-TERM MEMORY TEST (STMT)	1.best /p/ 2.told /m/ 4.past /m/ 9.sand /h/ 10.old /f/ 10.friend /k/ 12.ghost /s/ 14.mist /f/ 16.fact /h/ 27.just /k/ 30.old /h/ 33.best /h/ 36.lift /s/ 37.act /f/	13.fact /I/ 19.hold /æ/ 22.told /j/ 23.old /I/ 24.past /w/ 27.best /ʌ/ 28.find /æ/ 29.test /I/ 32.lift /æ/	3.nest 19.hand 26.ghost 30.fast 35.left	3.walked /r/ 5.fined /h/ 24.walked /p/	7.laughed /æ/ 8.walked /e/ 15.popped /ɔ/ 17.sniffed /ɛ/ 18.rolled /ə/	16.proved

STMT	1	2	3	KDmm TOTAL	4	5	6	KDgc TOTAL
NUMBER OF SIMPLIFICATIONS OF VARIABLE KD	___	___	___	___	___	___	___	___
NUMBER OF OCCURRENCES OF VARIABLE KD	___	___	___	___	___	___	___	___

CONSONANT CLUSTER (KD) SIMPLIFICATION SCORE SHEET (NO. 2)

NAME______________________________BLACK-WHITE_________MALE-FEMALE_____AGE_____

EDUCATION LEVEL______________SCHOOL____

VARIABLE	KDmm			KDgc		
PHONOLOGICAL ENVIRONMENT	(1) _K	(2) _V	(3) _####	(4) _K	(5) _V	(6) _####

II. READING

A. Hungry Sam first /ð/ most /ɑ/

first /g/

B. /rið/and/rɛð/ 1. last /m/ 7. cost /ə/

3. sold /m/ 7. cost /ə/

4. passed /b/ 6. liked /e/

9. looked /f/

READING	1	2	3	KDmm TOTAL	4	5	6	KDgc TOTAL
NUMBER OF SIMPLIFICATIONS OF VARIABLE KD	___	___	___	____	___	___	___	____
NUMBER OF OCCURRENCES OF VARIABLE KD	___	___	___	____	___	___	___	____

CONSONANT CLUSTER (KD) SIMPLIFICATION SCORE SHEET (NO. 2) (CONTINUED)

VARIABLE	KDmm				KDgc			
PHONOLOGICAL ENVIRONMENT	(1) _K	(2) _V	(3) _####		(4) _K	(5) _V	(6) _####	
III. STIMULUS-RESPONSE -REACTION-TIME-TEST (SRRTT) A. months B. Ordinal Numbers			August first second					
SRRTT	1	2	3	KDmm TOTAL	4	5	6	KDgc TOTAL
NUMBER OF SIMPLIFICATIONS OF VARIABLE KD	___	___	___	___	___	___	___	___
NUMBER OF OCCURRENCES OF VARIABLE KD	___	___	___	___	___	___	___	___
VARIABLE	KDmm				KDgc			
PHONOLOGICAL ENVIRONMENT	(1) _K	(2) _V	(3) _####		(4) _K	(5) _V	(6) _####	
IV. CONVERSATION OF INFORMANT WITH INTERVIEWER	___ ___ ___	___ ___ ___	___ ___ ___		___ ___ ___	___ ___ ___	___ ___ ___	
CONVERSATION	1	2	3	KDmm TOTAL	4	5	6	KDgc TOTAL
NO. OF SIMP.	___	___	___	___	___	___	___	___
NO. OF OCCUR.	___	___	___	___	___	___	___	___

CONSONANT CLUSTER (KD) SIMPLIFICATION SCORE SHEET (NO. 3)*

NAME______________________BLACK-WHITE________MALE-FEMALE_____AGE____

EDUCATIONAL LEVEL___________SCHOOL_____________________________

VARIABLE	KDmm			KDgc		
PHONOLOGICAL ENVIRONMENT	(1) _K	(2) _V	(3) _####	(4) _K	(5) _V	(6) _####
V. ORIGINAL SENTENCES Constructed by the informant, using the following word list:						
A. 1. best	___	___	___	___	___	___
2. lift	___	___	___	___	___	___
3. sand	___	___	___	___	___	___
4. hold	___	___	___	___	___	___
5. raised	___	___	___	___	___	___
6. aimed	___	___	___	___	___	___
7. friend	___	___	___	___	___	___
8. fast	___	___	___	___	___	___
9. find	___	___	___	___	___	___
10. past	___	___	___	___	___	___
11. old	___	___	___	___	___	___
12. just	___	___	___	___	___	___
13. taste	___	___	___	___	___	___
14. stand	___	___	___	___	___	___
15. missed	___	___	___	___	___	___
16. laughed	___	___	___	___	___	___

---

*Used for second grade informants only.

CONSONANT CLUSTER SIMPLIFICATION SCORE SHEET (NO. 3))CONTINUED)

VARIABLE	KDmm			KDgc		
PHONOLOGICAL ENVIRONMENT	(1) _K	(2) _V	(3) _####	(4) _K	(5) _V	(6) _####
B. OTHER WORDS IN THE ORIGINAL SENTENCES WHICH CONTAIN WORD-FINAL CONSONANT CLUSTERS:	____ ____ ____ ____ ____ ____	____ ____ ____ ____ ____ ____	____ ____ ____ ____ ____ ____	____ ____ ____ ____ ____ ____	____ ____ ____ ____ ____ ____	____ ____ ____ ____ ____ ____

ORIGINAL SENTENCES	1	2	3	KDmm TOTAL	4	5	6	KDgc TOTAL	GRAND TOTAL
NO. OF SIMPLI.	____	____	____	______	____	____	____	______	______
NO. OF OCCURRENCES	____	____	____	______	____	____	____	______	______

THE /r/ VARIABLE SCORE SHEET
SHORT-TERM-MEMORY-TEST

NAME____________________BLACK-WHITE__________MALE-FEMALE______AGE_____

EDUCATIONAL LEVEL____________SCHOOL__________________________

PHONOLOGICAL ENVIRONMENT							
r/_K	r/_##V	r/V_V	r/_##	r/_K	r/_##V	r/V_V	r/_##
1.our			player	17.yesterday		La/rr/y	
3.are	there /I/			18.cour/t/			
4.			car	19.your /h/			
5.cour/t/				20.ever /b/		Pa/r/is	
5.dollar /z/				20.or /p/			
5.for				21.our /t/			
9.hur/ts/				23.	our /o/		
10.for	her		dinner	25.are /k/			
11.bir/ð/				26.were /t/			
11.hur/t/				27.your /t/			
12.scar(e) /z/				27.over /h/			here
13.		eve/r/ybody		30.hor/s/e			
14.their /f/				31.our /b/			
14.flower /z/				32.over /h/			
15.shirt				34.wor/k/s		Ca/r/ol	
17.air/pl/ane				34.for /h/			

STMT	r/_K	r/_##V	r/V_V	r/_##
NO. OF SIMP.	____	____	____	____
NO. OF OCCURR.	____	____	____	____

THE VARIABLE /r/ SCORE SHEET (NO. 2)
READING

NAME________________________________BLACK-WHITE__________MALE-FEMALE______AGE_____

EDUCATIONAL LEVEL_______________SCHOOL____

PHONOLOGICAL ENVIRONMENT

_K	_##V	V_V	_##
A. Hungry Sam:			
remember /hw/			
where /h/			
far /fr/			over
our k			
cor/n/er			corner
dar/t/ed			
four /f/	before /e/		car
har/d/			
hear/t/			
or /k/			
car/d/s			
morning			
car/ed/			
for /h/			
hur/t/			
there /z/	remember /ɛ/		
other /θ/			
newspaper /z/		ca/rr/y	

_K	_##V	V_V	_##
your /f/			
fir/st/			
your /f/			
gir/l/			
more /t/			
wor/th/			
for/g/et			her
B. /rid/and/rɛd/:			
poster /z/			
dare /h/		ever/y/	brother
your /d/			
dear /l/			
yester/d/ay			
better /ʃ/			
for /t/			
wor/d/			

READING: A & B	_K	_##V	V_V	_##
NO. OF SIMP.	____	____	____	____
NO. OF OCCURR.	____	____	____	____

THE /r/ VARIABLE SCORE SHEET (NO.3)

NAME______________ BLACK-WHITE__________ MALE-FEMALE______ AGE_____

EDUCATIONAL LEVEL______________ SCHOOL______________________________

PHONOLOGICAL ENVIRONMENT

r/_K	r/_##V	r/V_V	r/_##	r/_K	r/_##V	r/V_V	r/_##

III. STIMULUS-RESPONSE-REACTION-TIME-TEST:			IV. CONVERSATION:
March	January	September	
April	February	October	
third		November	
fourth		December	
fourteenth			
thirteenth			
fortieth			
forty-fourth			

SRRTT:	_K	_##V	V_V	_##	TOTAL
NO. OF SIMP.	__	__	__	__	_____
NO. OF OCCURR.	__	__	__	__	_____

CONV.:	_K	_##V	V_V	_##	TOTAL
NO. OF SIMP.	__	__	__	__	_____
NO. OF OCCURR.	__	__	__	__	_____

THE /l/ VARIABLE SCORE SHEET

NAME____________________ BLACK-WHITE________ MALE-FEMALE_____ AGE____

EDUCATIONAL LEVEL___________ SCHOOL______________________________

PHONOLOGICAL ENVIRONMENT	(1) _K	(2) _##V	(3) _d	(4) _####
I. STMT:	27. uncle /J/ 31. basketball /t/ 37. all /£/	14. fell /ɔ/	2. told 10. old 18. rolled 19. hold 22. told 23. old 30. old	28. hill 34. Carol
STMT:		/l/		
NO. OF SIMP.	____	____	____	____
NO. OF OCCURR.	____	____	____	____
II. READING:				
A. Hungry Sam	all /m/ until /h/ trouble /£/	ball /ɔ/		girl
B. /rid/and/rɛd	2. all /£/ 3. soul /t/ 5. little /b/ 8. Alfred 9. trouble /hw/	7. nickel /j/	3. sold	3. devil
READING: A & B		/l/		
NO. OF SIMP.	____	____	____	____
NO. OF OCCURR.	____	____	____	____

THE /1/ VARIABLE SCORE SHEET (CONTINUED)

PHONOLOGICAL ENVIRONMENT	(1) _K	(2) _##V	(3) _d	(4) _####
III. SRRTT:				
Months				April
SRRTT:		/1/		
NO. OF SIMP.	____	____	____	____
NO. OF OCCURR.	____	____	____	____

IV. CONVERSATION:

CONVERSATION:		/1/		
NO. OF SIMP.	____	____	____	____
NO. OF OCCURR.	____	____	____	____

THE /ð/ VARIABLE SCORE SHEET

NAME__________ BLACK-WHITE__________ MALE-FEMALE______ AGE_____

EDUCATIONAL LEVEL__________ SCHOOL__________

PHONOLOGICAL ENVIRONMENT: ##/ð/_

I. STMT:

2. taste the
3. Are there
3. in that wasp
5. The court
6. That desk
9. The sand
11. The bird
12. The ghost
13. That fast
14. The mist
14. on their flowers
16. The fact
17. That boy
18. Across the court
21. is the fastest
22. stop that.
25. The desks
25. in this row
26. testing the ghosts
29. This test
30. The old
33. That was the best
37. They act
37. All the time

II. READING:

A. Hungry Sam
have the heart
There's something
about that--
this thing
that thing
and the other
it's the same
trouble than she's

B. ./rid/and/rɛd/
2. all the time
3. to the devil
4. read the posters
7. They cost
7. today their cost
8. better than Alfred
9. read the news

III. CONVERSATION:

STMT:	READING:	CONVERSATION:
NO. OF SIMP. _____ NO. OF OCCURR. _____	NO. OF SIMP. _____ NO. OF OCCURR. _____	NO. OF SIMP. _____ NO. OF OCCURR. _____

THE/θ/VARIABLE SCORE SHEET

NAME____________________BLACK-WHITE________MALE-FEMALE_____AGE_____

EDUCATIONAL LEVEL__________SCHOOL______________________________

PHONOLOGICAL ENVIRONMENT: _/θ/##

I. SHORT-TERM-MEMORY-TEST:

No occurrence of variable.

II. READING:

A. Hungry Sam

mouth /æ/
with /m/
worth /####/

B. /rid/and/rɛd/

1. month /α·/

III. STIMULUS-RESPONSE-REACTION-TIME-TEST:

fourth	ninth
fifth	tenth
sixth	eleventh
seventh	twelfth
eighth	thirtieth

SRRTT: /θ/

NO. OF SIMP. ______
NO. OF OCCURR. ______

IV. CONVERSATION:

READING: /θ/

NO. OF SIMP. ______
NO. OF OCCURR. ______

CONVERSATION: /θ/

NO. OF SIMP. ______
NO. OF OCCURR. ______

THE SECOND GRADE SCORE SHEET FOR ORIGINAL SENTENCES
VARIABLES /r/, /ʃ/, /θ/, and /Λ/

NAME______________________________BLACK-WHITE__________MALE-FEMALE_____AGE_____

EDUCATIONAL LEVEL_____________SCHOOL____

VARIABLES	/r/				/ʃ/	/θ/	/l/			
	_K	_##V	V_V	_####	##/ʃ/_	_θ##	_K	_##V	_d	_####

ORIGINAL SENTENCES	/r/				TOTAL	/ʃ/	/θ/	/l/				TOTAL
	_K	_##V	V_V	_####				_K	_##V	_d	_####	
NO. OF SIMP.												
NO. OF OCCURR.												

SUMMARY OF SCORE SHEET TOTALS FOR EACH VARIABLE

NAME______________________________BLACK-WHITE_________MALE-FEMALE_____AGE____

EDUCATIONAL LEVEL____________SCHOOL____

VARIABLE:	(KD)			/r/	/£/	/θ/	/l/
	KDmm	KDgc	KDtotal				
Simplification STMT Occurrence							
Simplification READING Occurrence							
Simplification SRRTT Occurrence							
Simplification CONVERSATION Occurrence							
Simplification (2nd Grade) ORIGINAL SENTENCES Occurrences							
Simplification TOTAL Occurrence							

APPENDIX C

EXPLANATION OF SYMBOLS USED TO SPECIFY PHONOLOGICAL VARIABLES

EXPLANATION OF SYMBOLS USED TO SPECIFY PHONOLOGICAL VARIABLES

1. (KDmm): Consonant clusters ending in -d or -t where the -d or -t is not a past tense marker, but is the final sound in a monomorphemic unit.

2. (KDgc): Consonant clusters ending in -d or -t where the -d or -t is the past tense marker--with grammatical significance--in polymorphemic units.

3. (KDtotal): The combined (KDmm) and KDgc)'s. This combination is treated as a separate variable in view of Labov's statement (Labov, 1969) that a speaker who uses a particular variation from 20 to 30 percent of the time is perceived as using it all the time.

4. /r/: Post-vocalic r.

5. /ð/: The word-initial voiced interdental fricative.

6. /θ/: The word-final voiceless interdental fricative.

7. /l/: The lateral consonant l.

APPENDIX D

RATIOS OF NUMBER OF SIMPLIFICATIONS TO NUMBER OF OCCURRENCES OF VARIABLES

RATIOS OF NUMBER OF SIMPLIFICATIONS TO
NUMBER OF OCCURRENCES OF VARIABLES.

PHONOLOGICAL VARIABLE IN LINGUISTIC ENVIRONMENT		SECOND GRADE INFORMANTS					
		BLACK			WHITE		
		Male	Female	Total	Male	Female	Total
KDmm	_K _V _####	228/258 92/115 120/144	207/251 83/123 110/140	435/509 175/238 230/284	155/236 37/118 36/147	151/262 31/122 32/130	306/498 68/240 68/277
KDmm	Total	440/517	400/514	840/1031	228/501	214/514	422/1015
KDgc	_K _V _####	37/65 26/72 8/13	28/62 20/82 9/17	65/127 46/154 17/30	11/47 2/59 4/28	17/62 5/72 1/14	28/109 7/131 5/42
KDgc	Total	71/150	57/161	128/311	17/134	23/148	40/282
KDmm + KDgc TOTAL		511/667	457/675	968/1342	245/635	237/662	482/1297
/r/	_K _##V V_V _####	417/639 34/47 19/75 97/126	277/655 31/59 12/75 63/145	694/1294 65/106 31/150 160/271	27/463 3/38 3/74 1/102	15/684 0/54 0/75 0/140	42/1147 3/92 3/149 1/242
/r/	Total	567/877	383/934	950/1811	34/677	15/953	49/1630
/£/	##_	347/469	172/446	519/915	105/401	60/467	165/868
/θ/	_##	59/119	49/132	108/251	19/106	27/130	46/236
/λ/	_K _##V _d _####	67/114 22/39 17/100 77/91	62/112 20/56 7/98 48/74	129/226 42/95 24/198 125/165	47/114 17/47 8/98 48/79	42/135 9/54 5/85 36/77	89/249 26/101 13/183 84/156
/λ/	Total	183/344	137/340	320/684	120/338	92/351	212/689

RATIOS OF NUMBER OF SIMPLIFICATIONS TO NUMBER OF OCCURRENCES OF VARIABLES.

PHONOLOGICAL VARIABLE IN LINGUISTIC ENVIRONMENT		SENIOR HIGH INFORMANTS					
		BLACK			WHITE		
		Male	Female	Total	Male	Female	Total
KDmm	_K	184/193	198/231	382/424	84/197	129/234	218/431
	_V	83/96	87/114	170/210	24/99	20/107	44/206
	_####	99/119	113/142	212/261	26/111	34/123	60/234
KDmm	Total	366/408	398/487	764/895	139/407	183/464	322/871
KDgc	_K	24/42	22/52	46/94	14/53	12/56	26/109
	_V	29/54	24/66	53/120	5/53	3/63	8/116
	_####	6/9	5/11	11/20	0/13	0/13	0/26
KDgc	Total	59/105	51/129	110/234	19/119	15/132	34/251
KDmm + KDgc TOTAL		425/513	449/616	874/1129	158/526	198/596	356/1122
/r/	_K	445/645	442/805	887/1450	30/666	26/733	56/1399
	_##V	44/60	47/77	91/137	2/56	2/64	4/120
	V̄_V	18/77	11/88	29/165	0/78	0/89	0/167
	_7####	86/99	71/110	157/209	0/102	0/115	0/217
/r/	Total	593/881	571/1080	1164/1961	32/902	28/1001	60/1903
/ʄ/	##_	301/386	296/473	597/859	7/409	9/432	16/841
/ə/	_##	34/75	30/88	64/163	1/78	2/90	3/168
/l/	_K	53/102	48/128	101/230	4/117	3/118	7/235
	_##V	22/43	19/58	41/101	1/43	2/53	3/96
	_d	9/69	9/52	18/121	0/57	0/68	0/125
	_####	32/48	37/68	69/116	7/50	1/58	8/108
/l/	Total	116/262	113/306	229/568	14/267	6/297	20/564

RATIOS OF NUMBER OF SIMPLIFICATIONS TO NUMBER OF OCCURRENCES OF VARIABLES.

PHONOLOGICAL VARIABLE IN LINGUISTIC ENVIRONMENT		EDUCATED INFORMANTS					
		BLACK			WHITE		
		Male	Female	Total	Male	Female	Total
KDmm	_K	69/83	79/137	148/220	19/53	75/177	94/230
	_V	33/45	40/89	73/134	3/31	14/100	17/131
	_####	37/55	39/95	76/150	13/43	17/86	30/129
KDmm	Total	139/183	158/321	297/504	35/127	106/363	141/490
KDgc	_K	7/16	11/31	18/47	0/12	7/34	7/46
	_V	1/18	8/43	9/61	0/17	1/51	1/68
	_####	0/5	1/9	1/14	0/3	1/12	1/15
KDgc	Total	8/39	20/83	28/122	0/32	9/97	9/129
KDmm + KDgc	Total	147/222	178/404	325/626	35/159	115/460	150/619
/r/	_K	173/316	291/544	464/860	16/203	160/618	176/821
	_##V	17/33	36/64	53/97	2/26	18/69	20/95
	V̄_V	0/34	1/52	1/86	0/26	3/58	3/81
	_#̄###	38/56	47/98	85/154	2/32	23/101	25/133
/r/	Total	228/439	375/758	603/1197	20/284	204/846	224/1130
/ð/	##_	53/168	10/307	63/475	2/122	0/350	2/472
/θ/	_##	6/29	1/55	7/84	0/20	2/60	2/80
/l/	_K	21/56	10/78	31/134	2/32	7/84	9/116
	_##V	1/19	3/27	4/46	2/12	1/23	3/35
	_d	1/30	1/58	2/88	0/24	0/71	0/95
	_####	14/25	8/38	22/63	2/17	6/46	8/63
/l/	Total	37/130	22/201	59/331	6/85	14/224	20/309

APPENDIX E

INTERACTION OF EDUCATION LEVEL, RACE, SEX

Figures 10-16 show the specific sources of variations attributable to Education Level, Race, Sex, and the interactions of E x R, E x S, R x S. These figures, one for each of the seven phonological variables, were designed to be used in conjunction with Tables 2 and 3 to illustrate graphically which segments within the total population contribute to the significant differences found in the Analysis of Variance tests. The figures provide the same kind of information which could be provided by a statistical test to look at various pairs of means to see where the differences are when a significant F-ratio is obtained. These figures not only show the groups which contribute most heavily to the significant differences in the three main effects and their interactions, but also indicate the direction of the contributions--toward a smaller or greater percentage of simplification. Figures 10-16, then, show the specific source of variation for Figures 1-4 on each of the seven phonological variables, taken separately. For example, Figure 2 shows that educated Blacks and Whites have differences with respect to five of the variables. Table 2 indicates that these five differences are statistically significant. Figure 2 shows the direction of these Differences: educated Blacks exercise deletion and substitution rules more frequently than do educated Whites--significantly so on five of the variables. Thus, the two groups are not members of the same population in their use of these consonants. Figures 10-16 provide information that neither Tables 2 and 3 nor Figures 1-4 give: 1) They supplement Figure 1 and Table 2 by showing the sex within each race that contributes more to the racial differences between educated Blacks and educated Whites on each of the variables; 2) They supplement Figure 2 and Table 3 by showing the specific sources of variation (Race, Sex) within the general Level of Education Effect; 3) They supplement Figure 3 and Table 3 by showing which groups contribute to the racial differences most--which level of education and which sex within that level; 4) they supplement Figure 4 and Table 3 by graphically illustrating the specific sources of variation contributing to the significant Sex Differences--Blacks and Whites within each level of education. For example, Figure 10 shows a greater difference (within race) between sexes (on the KDtotal variable) to be between Blacks (males and females) at the college-educated level. Males and females are farther apart here than are Black males and females at G-2 or SH. Also, they are more different in their frequency of simplification of KDtotal than are White males and females at any of the three levels of education. Thus, they are the specific source of variation contributing most heavily to the overall significant sex difference. This information is apparent in neither the F-ratio , Table 2, nor the Figures 1-4.

Figure 10

The Phonological Variable (KD total)

Effect of education, race, and sex on frequency of
simplification of all consonant clusters ending
in -d or -t in word-final position

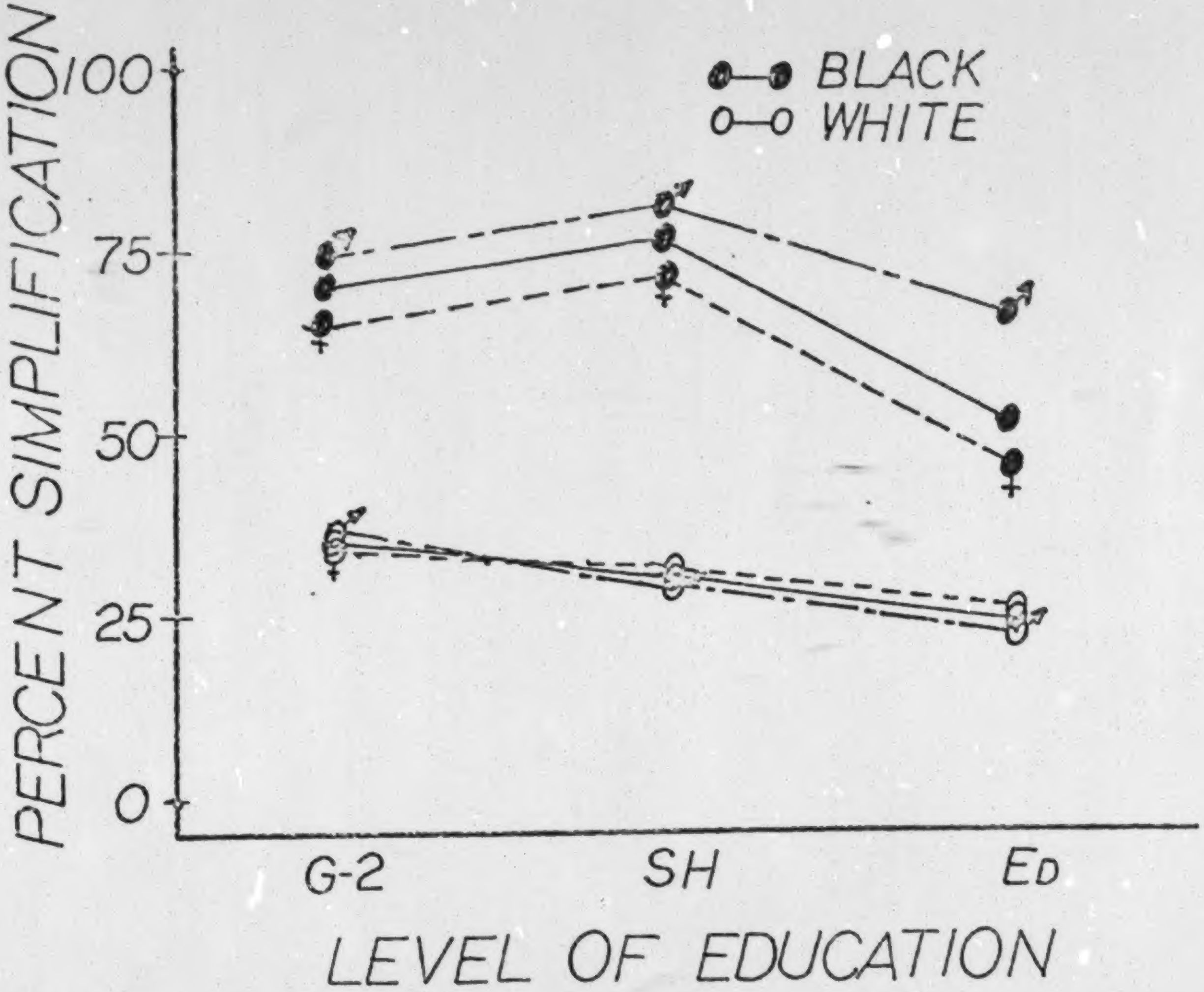

BLACK
WHITE
PERCENT SIMPLIFICATION
100
75
50
25
0
G-2
SH
ED
LEVEL OF EDUCATION

Figure 11

The Phonological Variable (KDmm)

Effect of education, race, and sex on frequency of simplification of consonant clusters ending in -d or -t in monomorphemic units

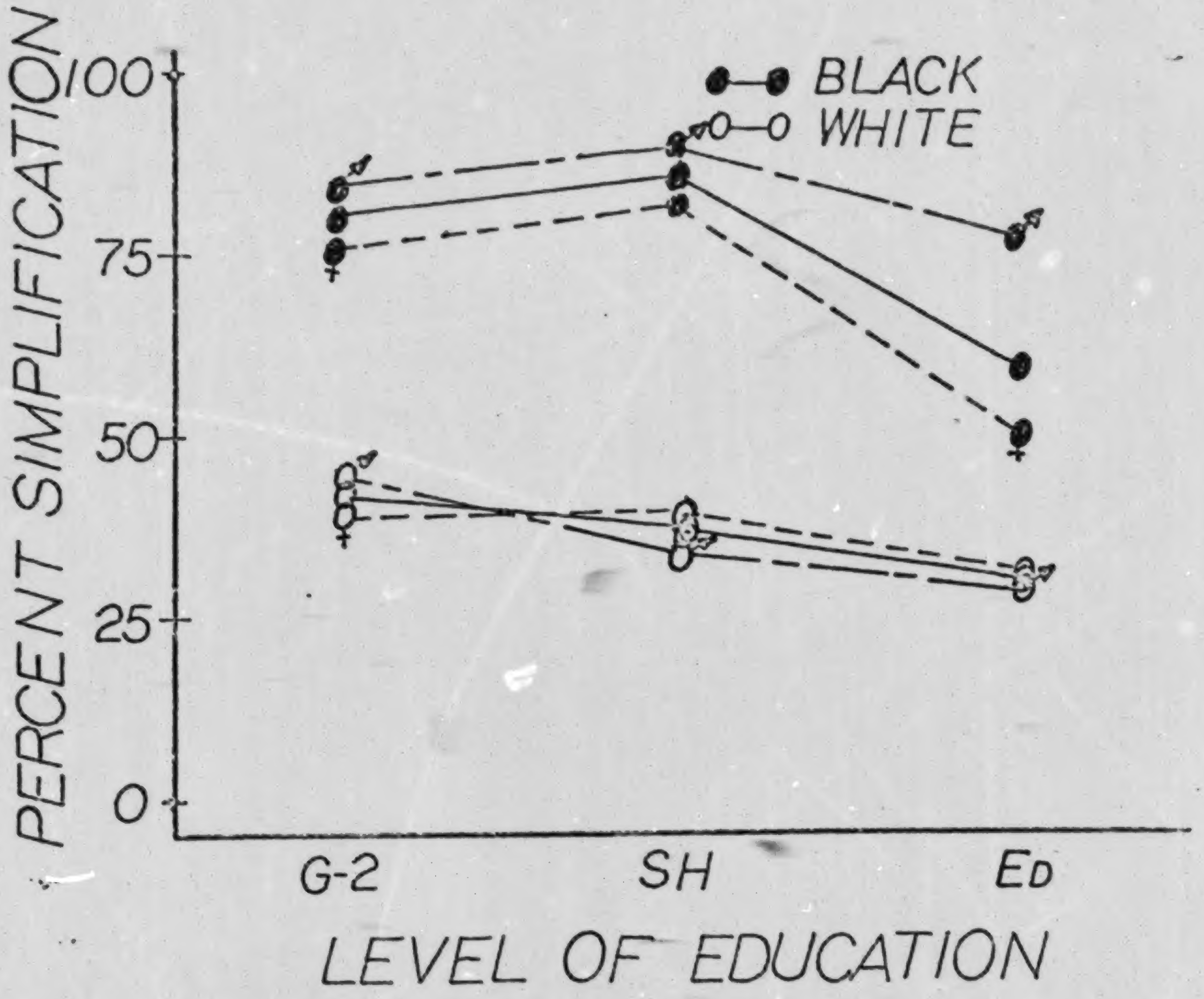

PERCENT SIMPLIFICATION
100
75
50
25
0
BLACK
WHITE
G-2
SH
ED
LEVEL OF EDUCATION

Figure 12

The Phonological Variable (KDgc)

Effect of education, race, and sex on simplification of consonant clusters in polymorphemic units

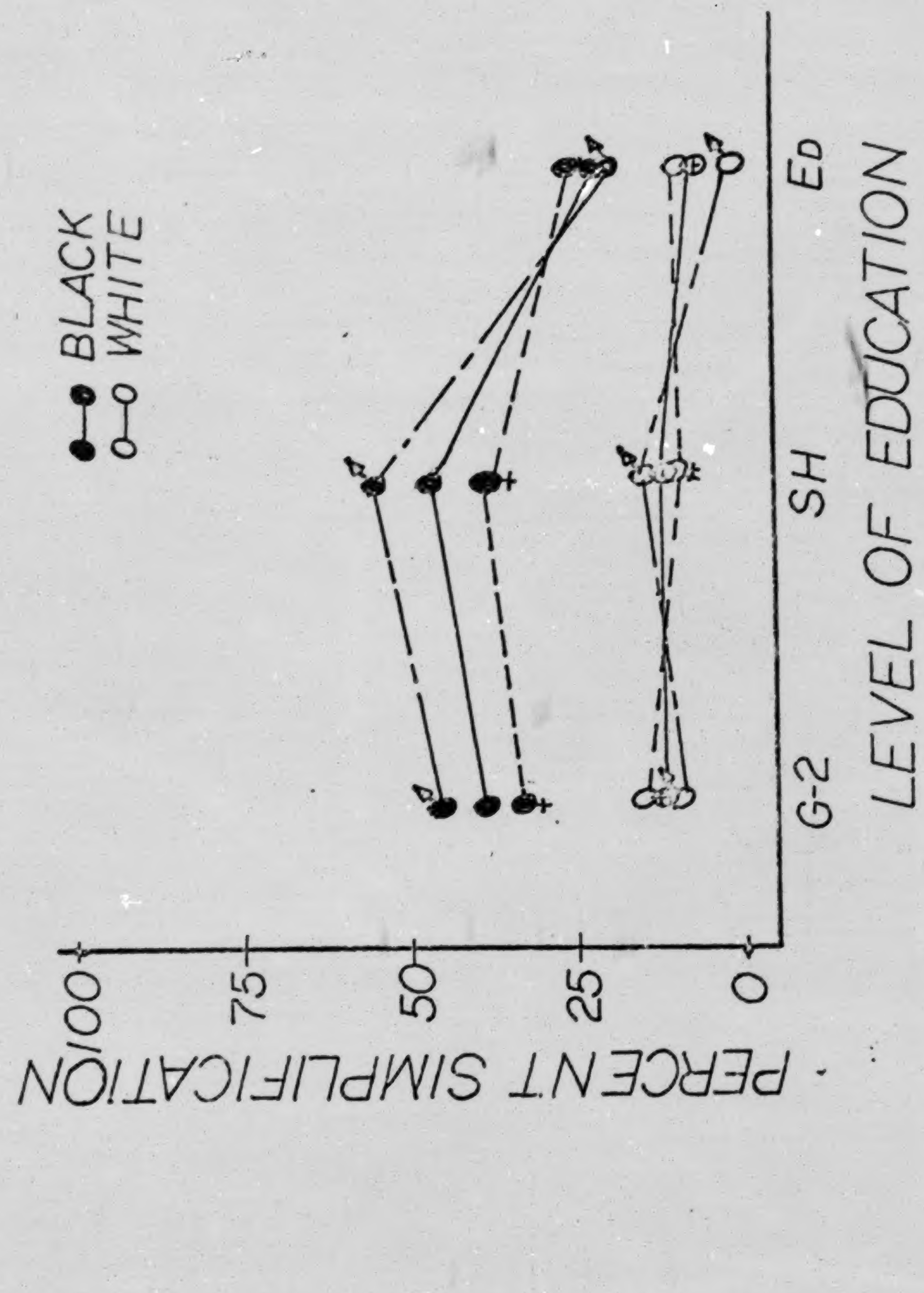

BLACK
WHITE
PERCENT SIMPLIFICATION
100
75
50
25
0
G-2
SH
ED
LEVEL OF EDUCATION

Figure 13

The Phonological Variable /r/

Effect of education, race, and sex on reduction of /r/ to /ɔ/ or /Ø/

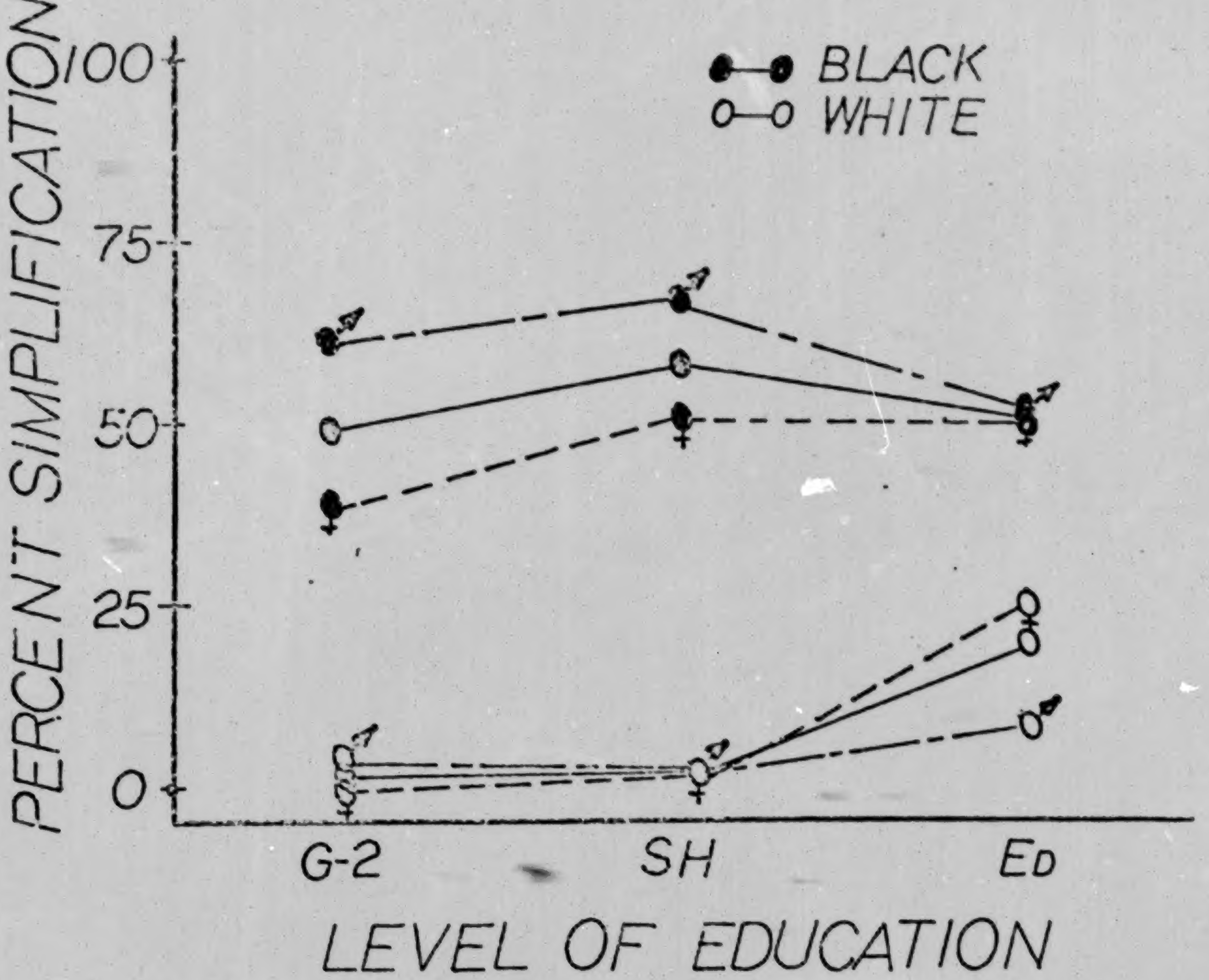

PERCENT SIMPLIFICATION
100
75
50
25
0
BLACK
WHITE
G-2
SH
ED
LEVEL OF EDUCATION

Figure 14

The Phonological Variable /ð/

Effect of education, race, and sex on substitution of /d/
for /ð/ in word-initial position

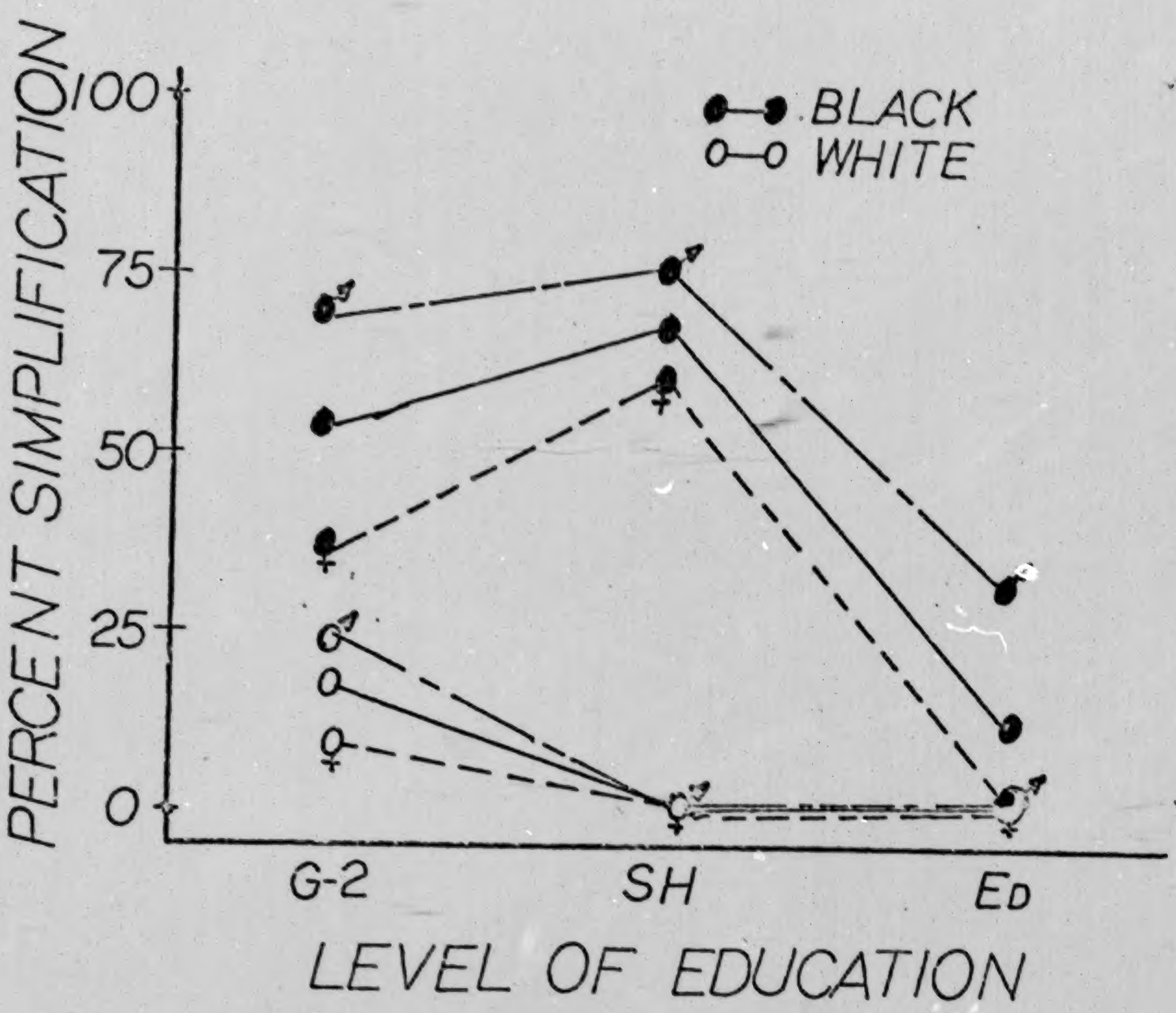

PERCENT SIMPLIFICATION
100
75
50
25
0
BLACK
WHITE
♂
♀
G-2
SH
ED
LEVEL OF EDUCATION

Figure 15

The Phonological Variable /θ/

Effect of education, race, and sex on substitution of /t/, /d/, or /f/ for /θ/ in word-final position

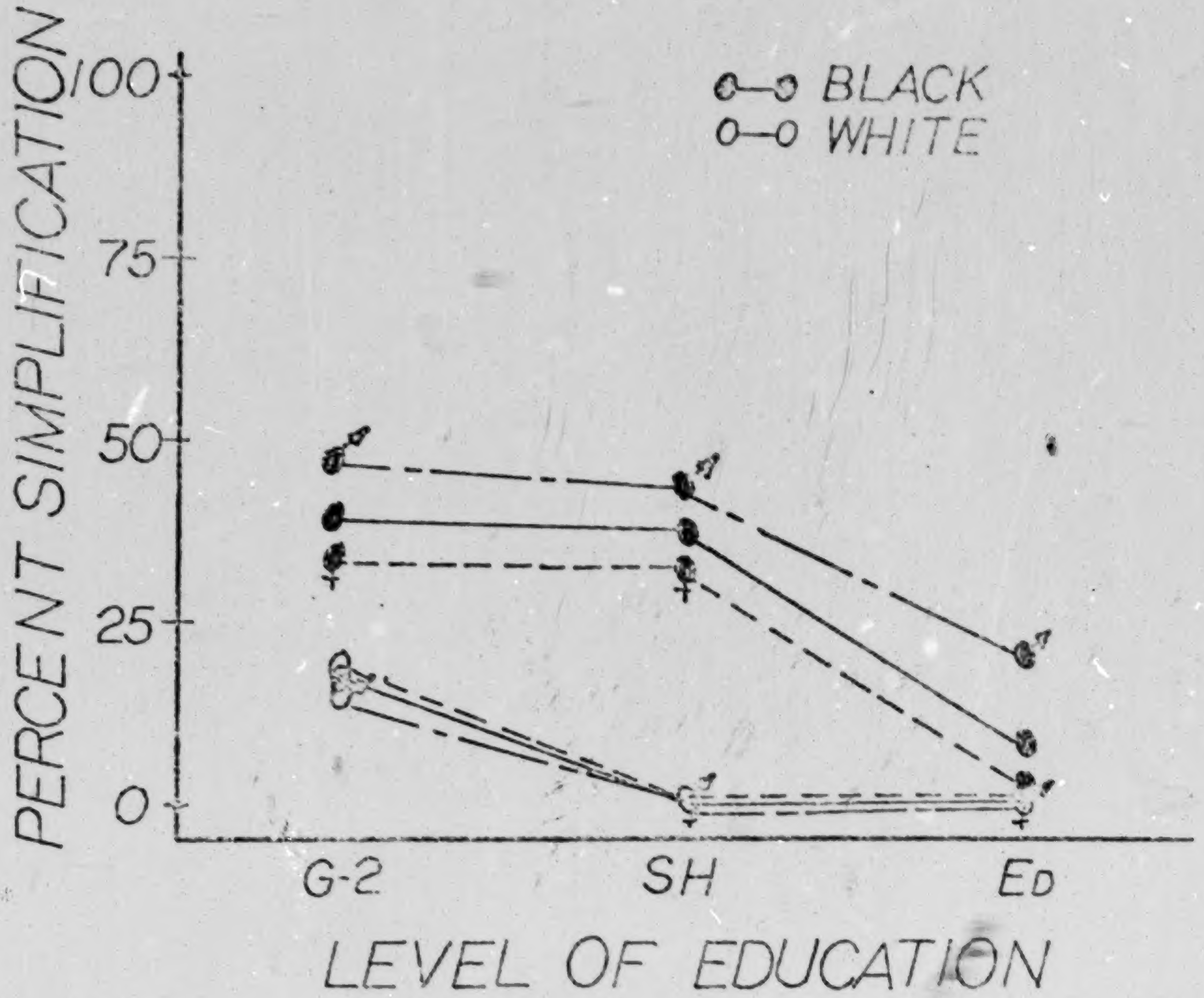
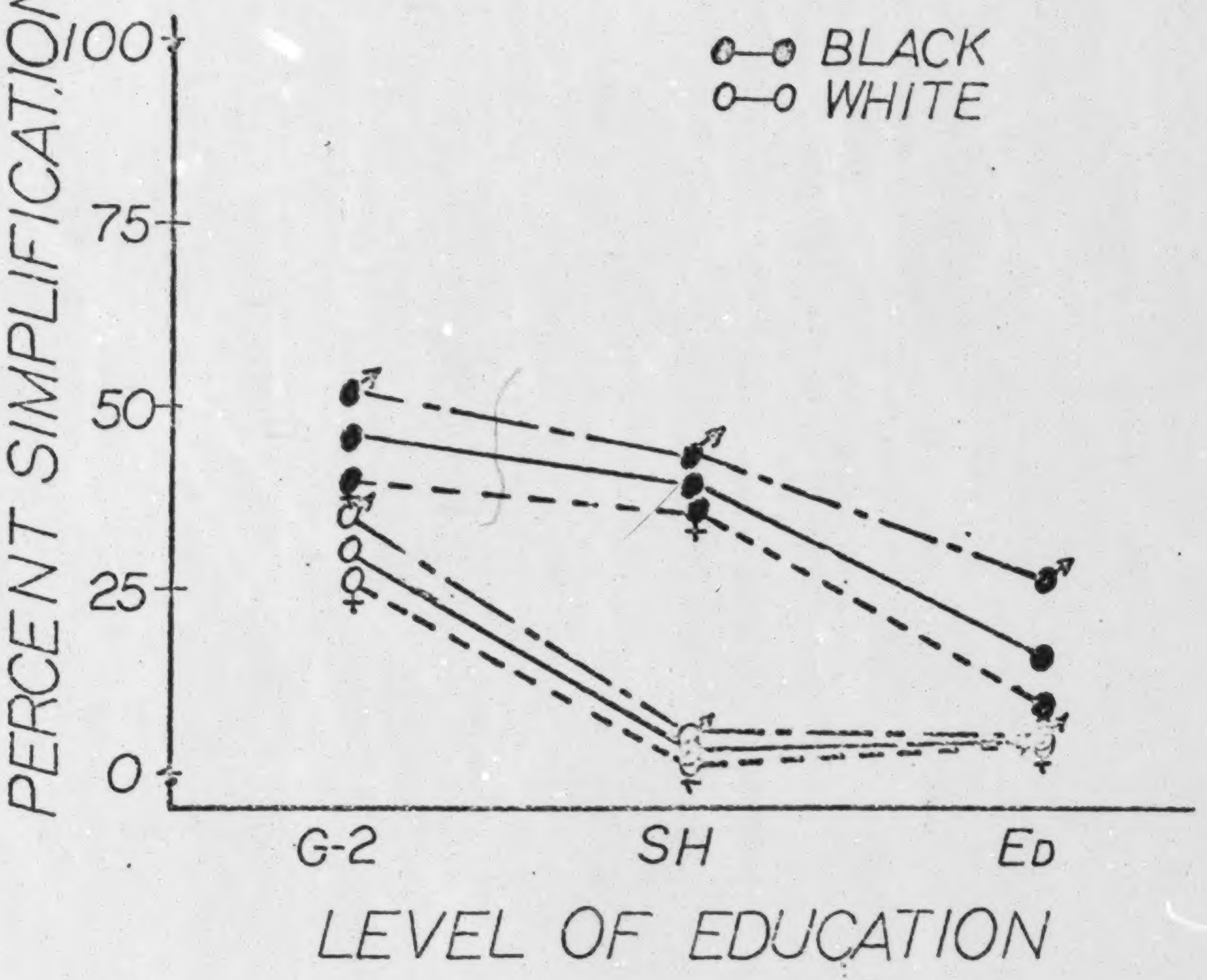

PERCENT SIMPLIFICATION
100
75
50
25
0
BLACK
WHITE
G-2
SH
ED
LEVEL OF EDUCATION

Figure 16

The Phonological Variable /l/

Effect of education, race, and sex on reduction of /l/ to a velar glide (/ɣ/) or to /∅/



PERCENT SIMPLIFICATION
100
75
50
25
0
G-2
SH
ED
LEVEL OF EDUCATION
BLACK
WHITE
♂
♀

APPENDIX F

DIFFERENCES WITHIN RACE

Figure 17

(KDmm)' and (KDgc): Differences Within Race (Black)

Effect of linguistic environment upon the operation of the consonant cluster simplification rules for KDmm and KDgc

Notice that grammatical constraints consistently weaken the operation of the phonological rule

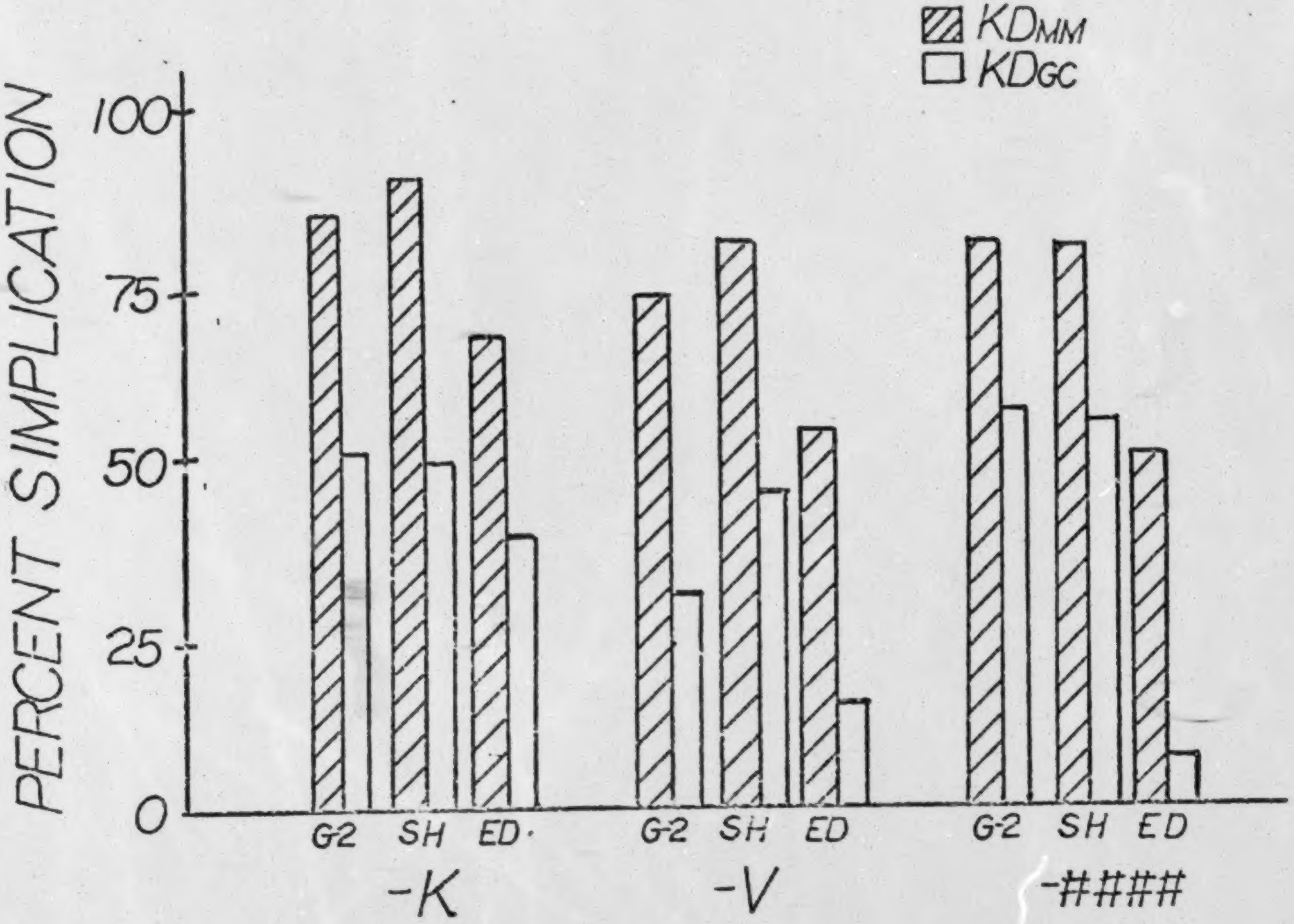

▨ KDMM
□ KDGC
PERCENT SIMPLICATION
100
75
50
25
0
G-2
SH
ED
-K
G-2
SH
ED
-V
G-2
SH
ED
-####

Figure 18

(KDmm) and (KDgc): Differences Within Race (White)

Effect of linguistic environment upon the operation of the consonant cluster simplification rules for KDmm and KDgc

Notice that grammatical constraints consistently weaken the operation of the phonological rule

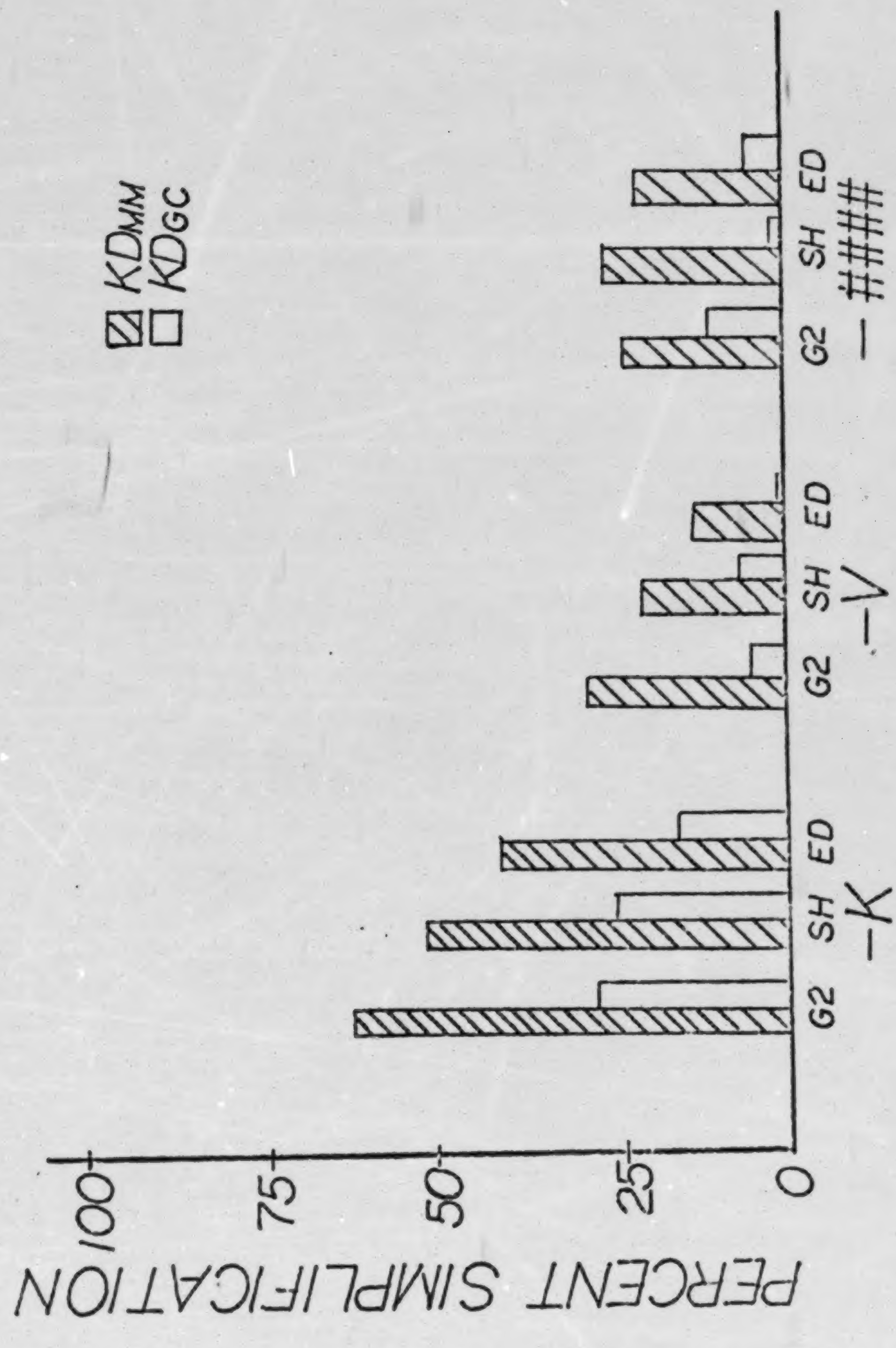

PERCENT SIMPLIFICATION
100
75
50
25
0
G2
SH
ED
-K
G2
SH
ED
-V
G2
SH
ED
-####
▨ KDMM
□ KDGC

Figure 19

r-lessness: A Comparison Within Race (Black) at Three Levels of Education

Effect of linguistic environment upon the operation of the phonological rule reducing /r/ to /Ø/ or /ə/

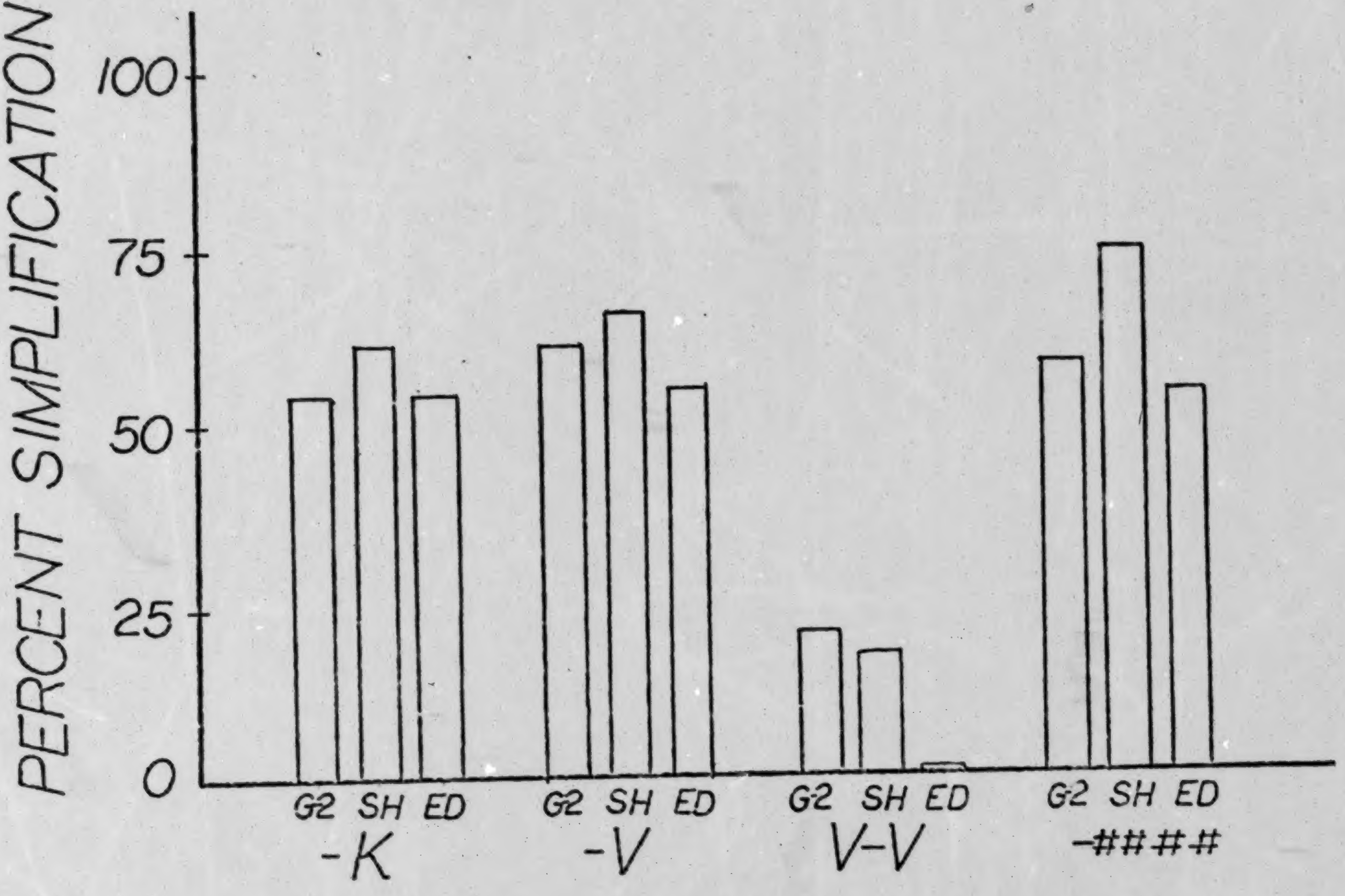

PERCENT SIMPLIFICATION
100
75
50
25
0
G2 SH ED
-K
G2 SH ED
-V
G2 SH ED
V-V
G2 SH ED
-####

Figure 20

r-lessness: A Comparison Within Race (White) at Three Levels of Education

Effect of linguistic environment upon the operation of the phonological rule reducing /r/ to /∅/ or /ə/

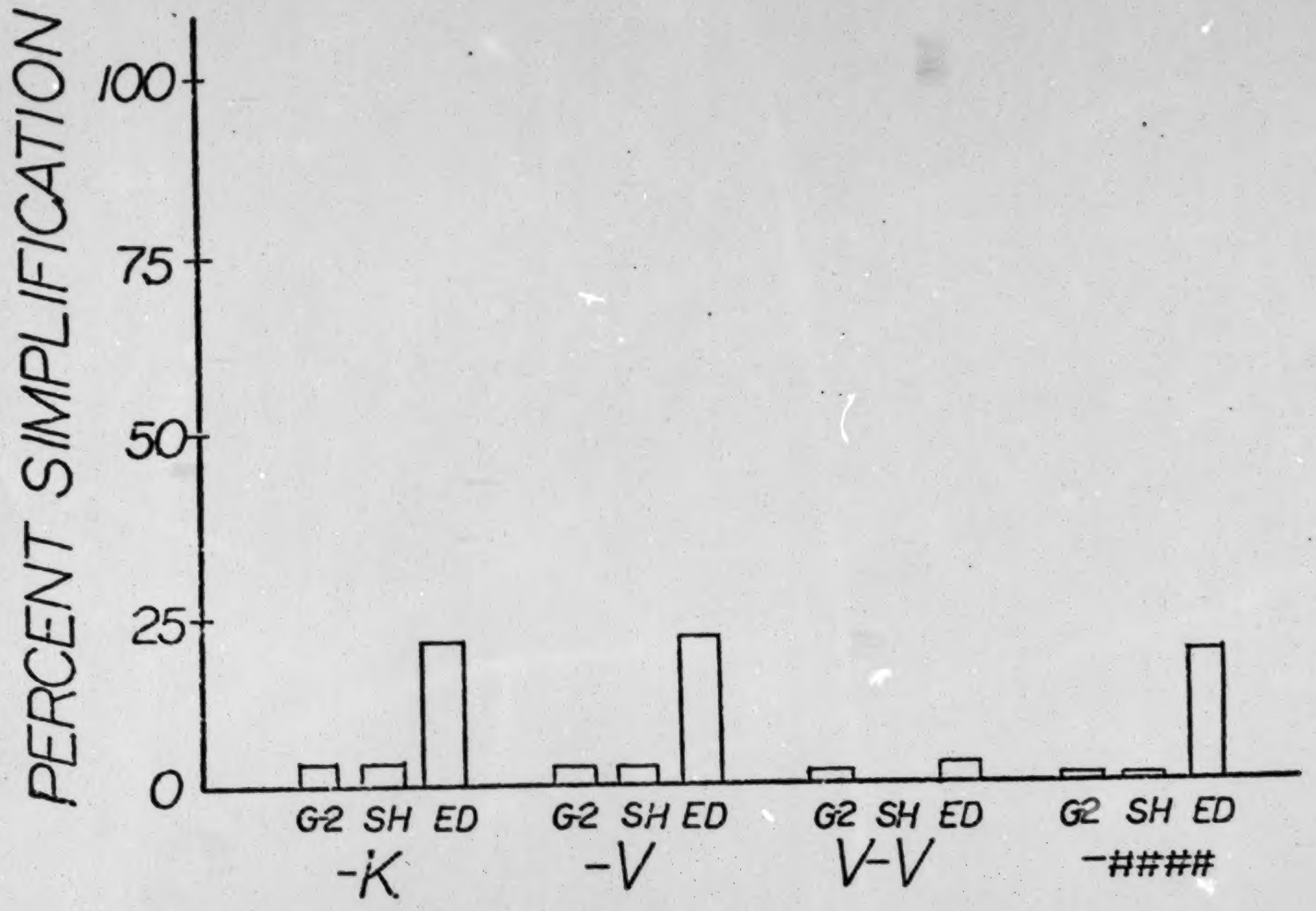

PERCENT SIMPLIFICATION
100
75
50
25
0
G2 SH ED
-K
G2 SH ED
-V
G2 SH ED
V-V
G2 SH ED
-####

Figure 21

l-léssness: Differences Within Race (Black)

Effect of linguistic environment on the reduction of /l/
to a velar glide /ɣ/ or to /Ø/

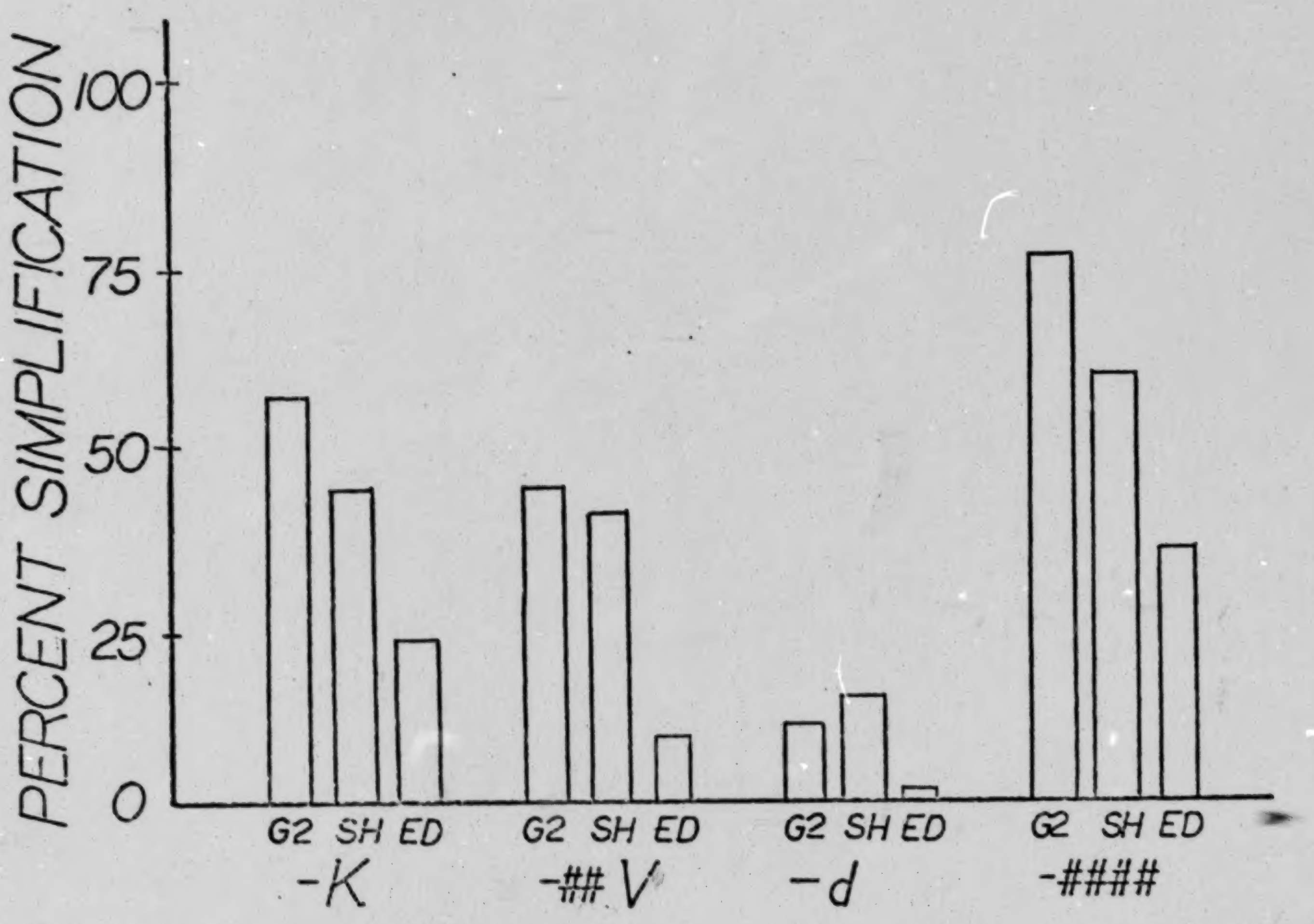
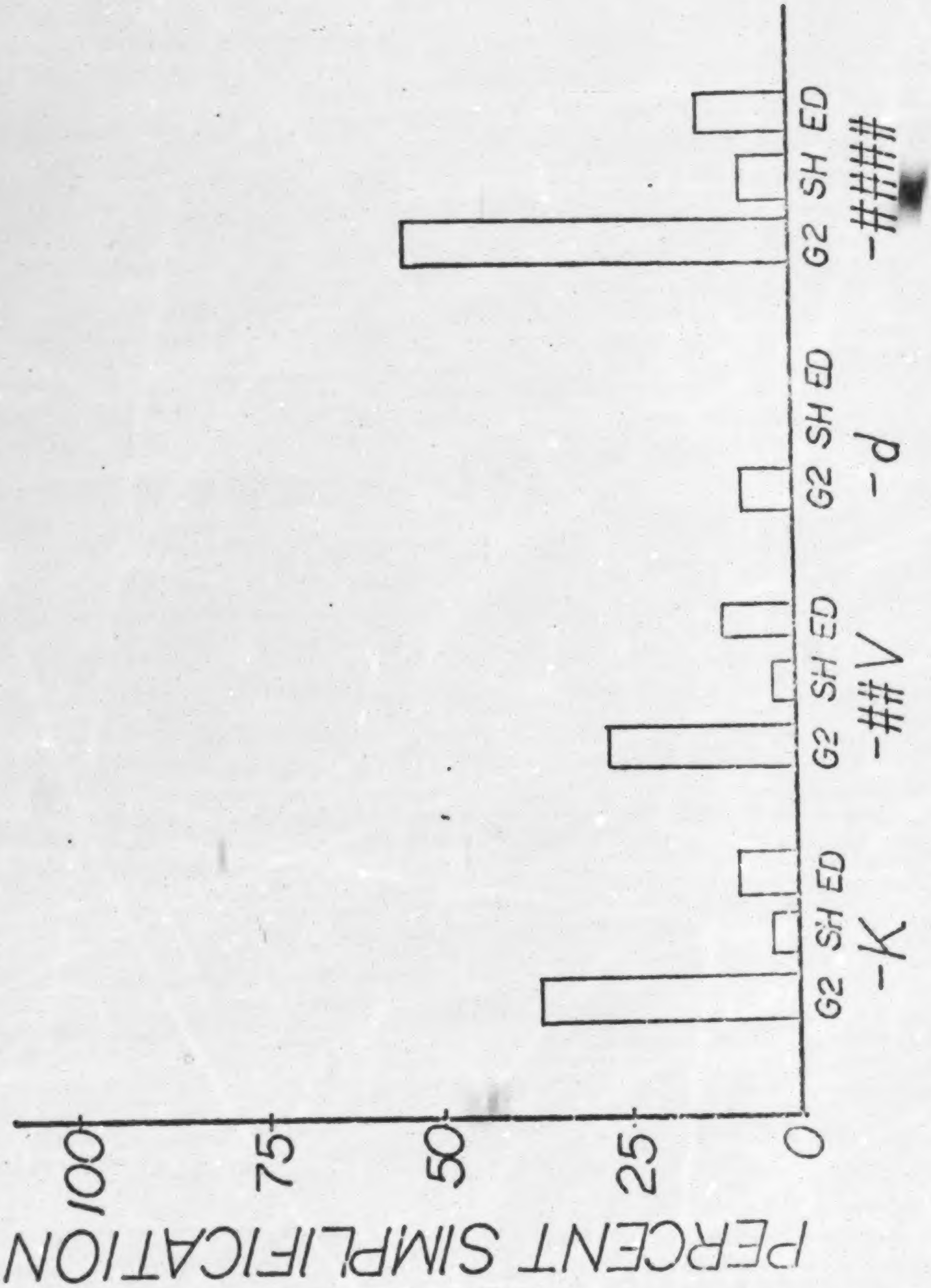

PERCENT SIMPLIFICATION
100
75
50
25
0
G2 SH ED
-K
G2 SH ED
-## V
G2 SH ED
-d
G2 SH ED
-####

Figure 22

l-lessness: Differences Within Race (Whites)

Effect of linguistic environment on the reduction of
/l/ to a velar glide (/ɤ/) or to /∅/


PERCENT SIMPLIFICATION
100
75
50
25
0
G2
SH
ED
-K
G2
SH
ED
-##V
G2
SH
ED
-d
G2
SH
ED
-####

APPENDIX G

DIFFERENCES BETWEEN RACES

Figure 23

(KDmm): A Comparison of Blacks and Whites at Three Levels of Education

The effect of a following consonant (K), vowel (_V) and major constituent break (_####) upon the operation of the consonant cluster simplification rule on monomorphemic units

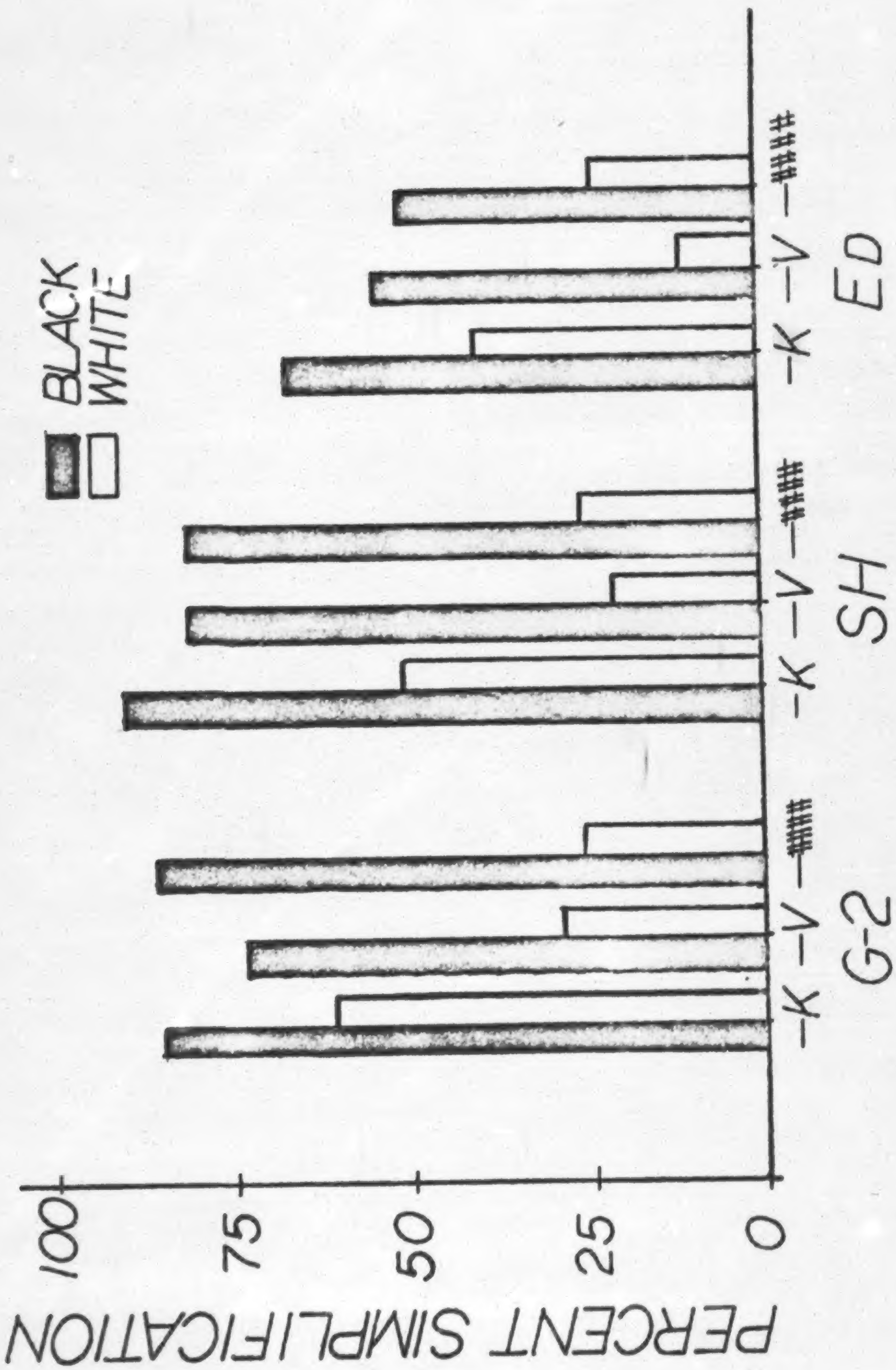

PERCENT SIMPLIFICATION
100
75
50
25
0
BLACK
WHITE
-K
-V
-####
G-2
-K
-V
-####
SH
-K
-V
-####
ED

Figure 24

(KDgc): A Comparison Between Blacks and Whites at Three Levels of Education

The effect of a following consonant (_K), vowel (_V), and major constituent break (_####) upon the operation of the consonant cluster simplification rule on polymorphemic units (grammatical clusters)

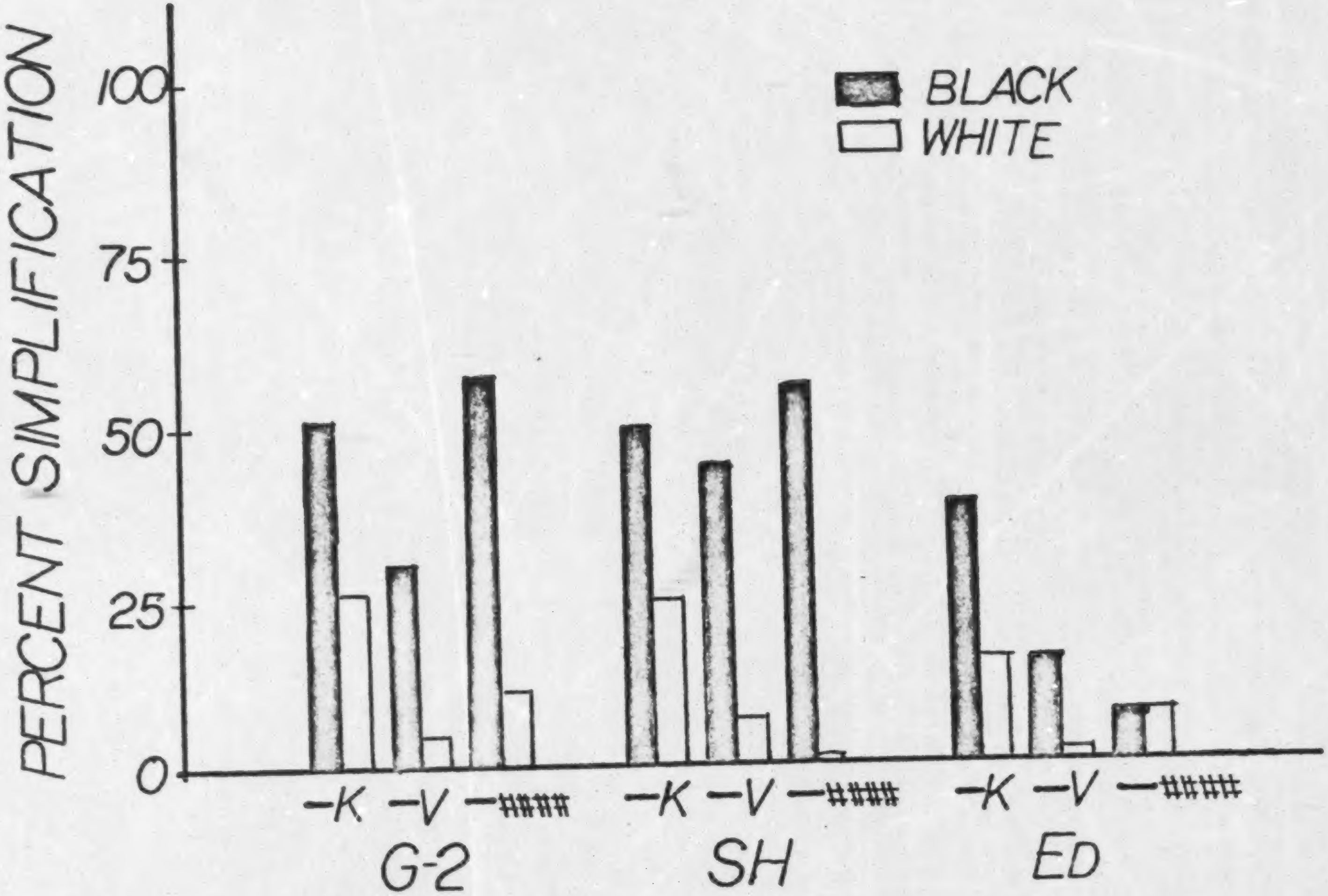

PERCENT SIMPLIFICATION
100
75
50
25
0
BLACK
WHITE
-K
-V
-####
G-2
SH
ED

Figure 25

r-lessness: A Comparison Between Blacks and Whites at Three Levels of Education

Effect of linguistic environment upon the operation of the phonological rule reducing /r/ to /Ø/ or /ə/

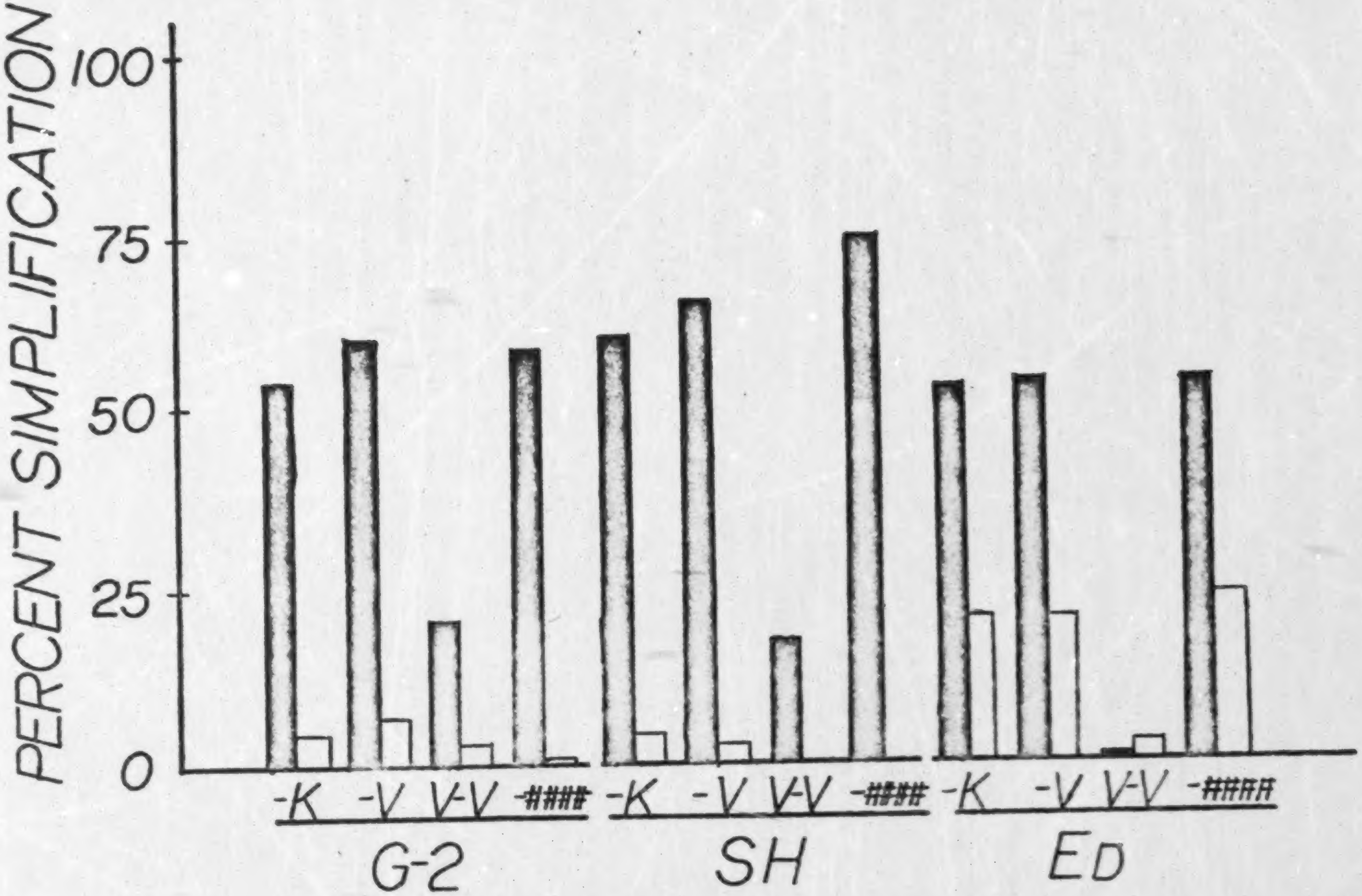
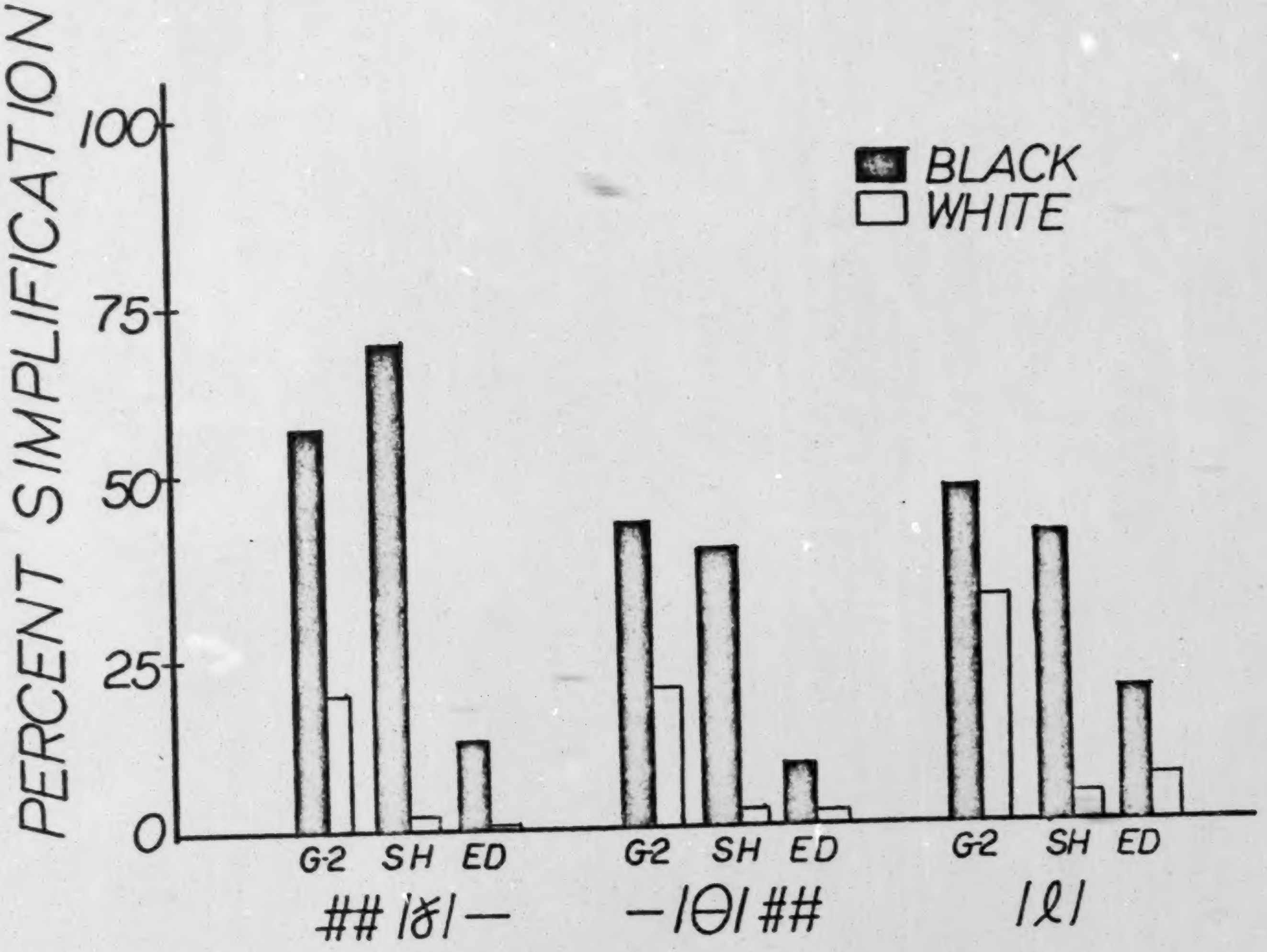

PERCENT SIMPLIFICATION
100
75
50
25
0
-K
-V
V-V
-####
G-2
-K
-V
V-V
-####
SH
-K
-V
V-V
-####
ED

Figure 26

Frequency of Substitution and Deletion of /ʒ/, /θ/, and /l/:
A Comparison Between Blacks and Whites at Three Levels of Education


PERCENT SIMPLIFICATION
100
75
50
25
0
BLACK
WHITE
G-2
SH
ED
## |ɣ| —
— |θ| ##
|ℓ|

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